

Childhood Lead Poisoning in The City of St. Louis



Annual Report 2007

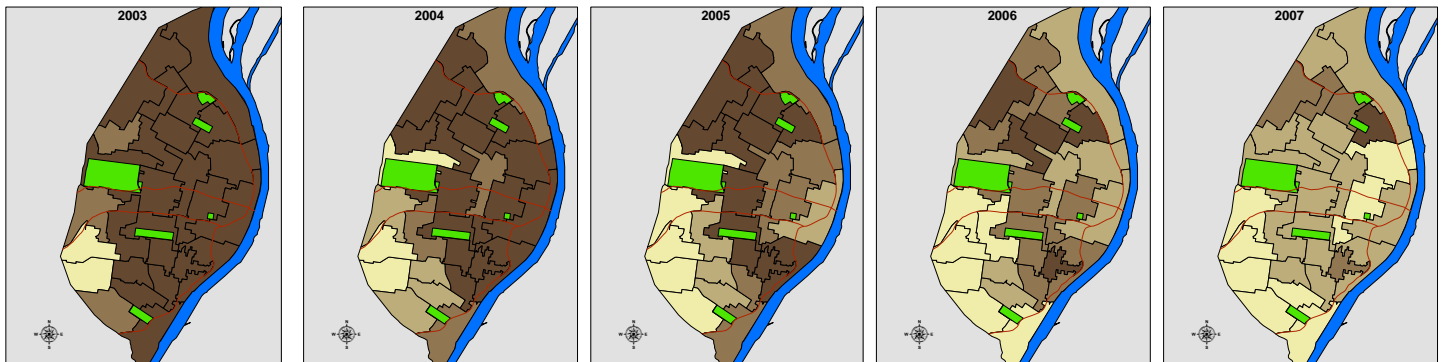
City of St. Louis
Department of Health
Childhood Lead Poisoning Prevention Program

Statistics at a Glance

City of St. Louis Childhood Lead Poisoning Surveillance 2003-2007

Screening	2003		2004		2005		2006		2007		
Population <6 years old (2000 Census)	28,369		28,369		28,369		28,369		28,369		
St. Louis City Children Screened	12,011		13,249		11,227		12,779		12,836		
Percent eligible screened	42.3%		46.7%		39.6%		45.0%		45.2%		
Mean age in years	3.0		2.8		3.0		3.0		2.9		
Male:Female Ratio	1.03		1.03		1.03		1.04		1.05		
Race (%)											
African American	6,094	50.7%	5,601	42.3%	8,067	71.9%	9,147	71.6%	9,114	71.0%	
White	735	6.1%	636	4.8%	2,032	18.1%	2,300	18.0%	2,522	19.6%	
Other	217	1.8%	232	1.8%	167	1.5%	690	5.4%	457	3.6%	
Race Missing	4,965	41.3%	6,780	51.2%	961	8.6%	642	5.0%	743	5.8%	
Total	12,011	100.0%	13,249	100%	11,227	100%	12,779	100%	12,836	100.0%	
Lead Poisoning	2003		2004		2005		2006		2007		
Prevalent Cases (Pb ≥ 10 µg/dl)	1,638		1,189		1,025		892		567		
Screening Prevalence Rate (%)	13.6%		9.0%		9.1%		7.0%		4.4%		
Incident Cases (Pb ≥ 10 µg/dl)	936		629		406		512		345		
Screening Incidence Rate (%)	9.7%		5.5%		4.0%		4.3%		2.9%		
Blood Lead Results											
0-4 µg/dl	6,234	51.9%	8,596	64.9%	7,413	66.0%	8,778	68.7%	9,753	76.0%	
-negligible blood lead											
5-9 µg/dl	4,139	34.5%	3,464	26.1%	2,789	24.8%	3,109	24.3%	2,516	19.6%	
-evidence of exposure but not lead poisoned											
≥ 10 µg/dl	1,638	13.6%	1,189	9.0%	1,025	9.1%	892	7.0%	567	4.4%	
-lead poisoned											
Missouri Screening Prevalence Rate	4.4%		3.0%		2.8%		2.2%		1.5%		
U.S. Estimated Prevalence Rate	2.2%		1.6%		1.6%		1.6%		1.6%		

2003-2007 Reduction of the Screening Prevalence Rate by Aldermanic Wards



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The 2007 CLPPP Annual Report can be downloaded from:

<http://stlouis.missouri.org/citygov/health/reportslead.html>



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Executive Summary

Since 1996 the City of St. Louis Department of Health has published annual reports regarding childhood lead poisoning (CLP). In this, the twelfth edition, we are proud to announce that the screening prevalence rate has again dropped to a new low of 4.4%.

A rate of 4.4% continues to exceed state and national rates and much work remains in St. Louis. However, the rate in 2001 was 16.2%, which means that in just six years, the rate of CLP has decreased by over 70 percent in the City of St. Louis.

These results are the product of a collaborative approach by four City agencies: the Building Division, Community Development Administration, Department of Health, and the Problem Properties Court. In addition, numerous community partners contribute to the effort via the Lead Safe St. Louis Task Force.

As its predecessors, this report will delineate many aspects of CLP in St. Louis. Several factors appear to have significant effect on exposure to lead. Age, socioeconomic status, physical geography, and time of year are some of the determinants that play a role in the likelihood of children being exposed to environmental lead. This report attempts to convey the same information as previous reports, but in a slightly different way.

We hope that this report accomplishes the goal of making information easier to absorb. We have laid out a table of contents that, we think, is a bit more intuitive and user-friendly. We hope that making the report easier to navigate will encourage those who read it, to perhaps discover different areas that before went unexplored by some readers.

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Screening Incidence Rates by ZIP Code

Screening Prevalence Rates by Ward

Screening Incidence Rates by Ward

Screening Prevalence Rates by Neighborhood

Screening Incidence Rates by Neighborhood

What is Childhood Lead Poisoning?

How it Happens, Symptoms, and State and National Statistics

The Centers for Disease Control (CDC) have set the threshold for lead poisoning at 10 micrograms of lead per deciliter of blood ($\mu\text{g}/\text{dl}$). Childhood lead poisoning (CLP) occurs when a child has a blood lead test that meets or exceeds this threshold. Approximately 285,000 children aged 1-5 years have elevated blood lead levels in the United States.

The major source of lead exposure among U.S. children is lead-based paint and lead-contaminated dust found in deteriorating buildings. Historically, the main source of lead exposure was automobile exhaust. However, since lead was removed from gasoline in the 1970's, epidemiologic evidence has determined that most lead exposure occurs in the home environment from lead paint dust and chips.

Lead often enters the body when children put their hands or other objects covered with lead dust into their mouths or, less commonly, eat paint chips or soil that contains lead. Lead poisoning may also result from breathing in lead dust created during renovation or home repair.

Lead-based paints were banned for use in housing in 1978. However, approximately 24 million housing units in the United States have deteriorated lead paint and elevated levels of lead-

contaminated house dust. More than 4 million of these dwellings are home to one or more young children.

More than 90% of the housing stock in St. Louis was built before 1978. This does not mean that all those homes have lead paint hazards in them. However, in a considerable portion of dwellings, the paint is chipping and turning into dust, which creates a dangerous situation.

Lead poisoning can affect nearly every system in the body. It can cause learning disabilities, behavioral problems, and at very high levels, seizures, coma, and even death. It is also very difficult to detect without a blood test. Rarely are symptoms evident, even at relatively high levels.

The screening prevalence rate (SPR) is the most common way to measure how widespread CLP is. In the United States, the SPR is estimated at 1.6%. This means that approximately 1.6% of children who had a blood test for lead had a level at or above 10 $\mu\text{g}/\text{dl}$.

In Missouri, the SPR is about 1.5% of children screened. In 2007, the City of St. Louis had an SPR of 4.4%. While still considerably higher than state and national rates, four years ago the City of St. Louis' rate was almost 14%.

Who Was Tested for Childhood Lead Poisoning in 2007?

Testing Guidelines

There are approximately 29,000 children under the age of six residing in the City of St. Louis. In order to effectively monitor CLP in St. Louis, the Department of Health receives both monthly and annual data on every child screened for CLP in the City.

Because the entire City of St. Louis is classified as a high-risk area, Missouri guidelines state that all children under six years of age must be screened for CLP annually ([Table I](#)).

Table I
Missouri Lead Testing Plan

High-Risk Areas	Non-High Risk Areas
<ul style="list-style-type: none"> Any <u>child under the age of six years</u> living in or visiting for 10 hours per week or more, the high-risk area, <u>will be tested annually</u> for lead. Daycare facilities are required to record a "<u>proof of lead testing</u>" signed by the Health Care Provider performing the test <u>within thirty (30) days of the child's enrollment</u>. If the parent/guardian does not provide it or a written statement stating why they do not want the child tested, the daycare facility is to offer the parent assistance in scheduling a test. Any <u>child found to be at High-Risk</u>, is living in a residence that was built before 1978, and is <u>undergoing renovation</u>, <u>may be tested every six months</u> and once following completion of the work. (Also applies to children found to be at high-risk in non high-risk areas.) 	<ul style="list-style-type: none"> Any <u>child under the age of six years</u> visiting for 10 hours per week or more, a high-risk area, <u>will be tested annually</u> for lead. All <u>Medicaid eligible children</u> will be blood tested for lead at 12 and 24 months of age. It is recommended that all children (regardless of Medicaid eligibility) be <u>tested for lead at 12 and 24 months of age</u>. (This statement does not appear in the law, but applies as HCFA policy and DHSS recommendations.) Beginning at <u>age six months up to age six years</u> every child will <u>be screened by verbal risk assessment</u> (DHSS/DSS questionnaire) to determine whether they are at high risk. <u>Every child, less than age six, found to be at high risk, will be tested for lead.</u>

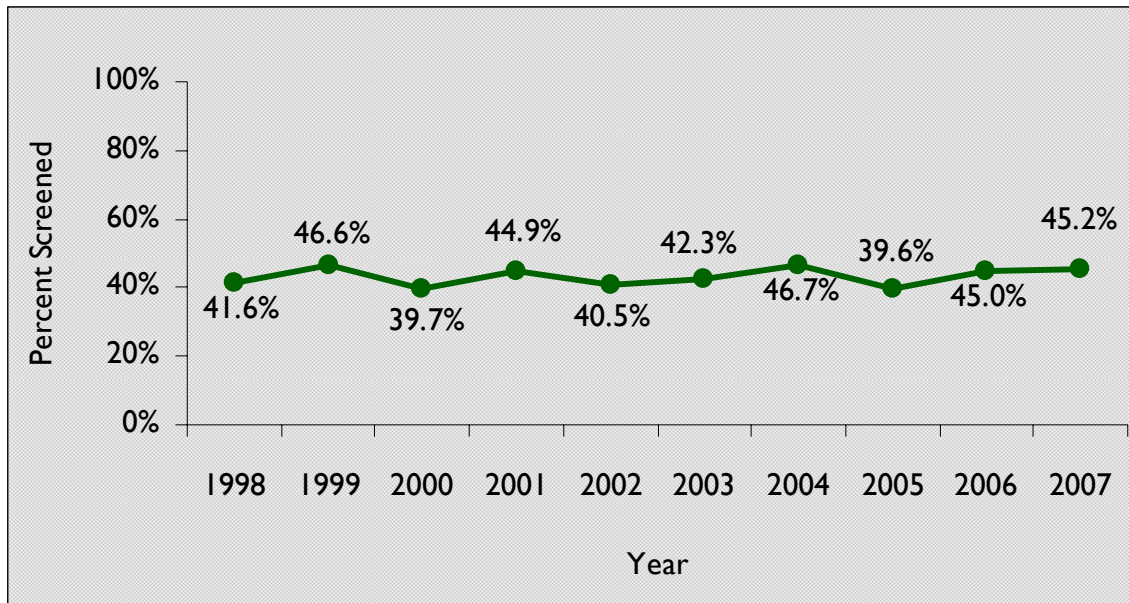
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Citywide Numbers

In 2007, there were 12,836 children screened for CLP in the City of St. Louis. This represents about 45% of St. Louis children under 6 years old.

Although the state of Missouri mandates that all children under 6 must be screened, increasing the number of children screened has proven difficult historically (Figure 1).

Figure 1
Percentage of Children Screened for Lead Poisoning, 1998-2007



The Department of Health (DOH) relies on primary care physicians to screen children for CLP. The DOH screened 1,190 children in 2007, but does not have the capacity to test all 29,000 children in the City.

One of the difficulties in screening 100% of City children is a perception by physicians that some children do not need to be screened for various reasons. Some areas of the City, particularly the southwest regions, have had considerably lower rates of CLP than other areas of the City. While this

is a good thing, it is important to screen all children for CLP. Not all homes in the areas with low prevalence rates are free of lead hazards. Physicians assuming that a child from a particular area of the City will not be exposed to lead, ignore the chances that the child could still be lead poisoned.

Additionally, many physicians think that if a child is not lead poisoned by the age of 2, there is no need to screen anymore because the age of 2 is the age at which a child is most likely to be lead poisoned. This too is dangerous. A

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City of St. Louis cohort study found that 8.1% of children not lead poisoned at age 2 were found to be lead poisoned at a later age. Also, of children who had undetectable levels of lead in their blood at ages 1 and 2, 30% of them had a level

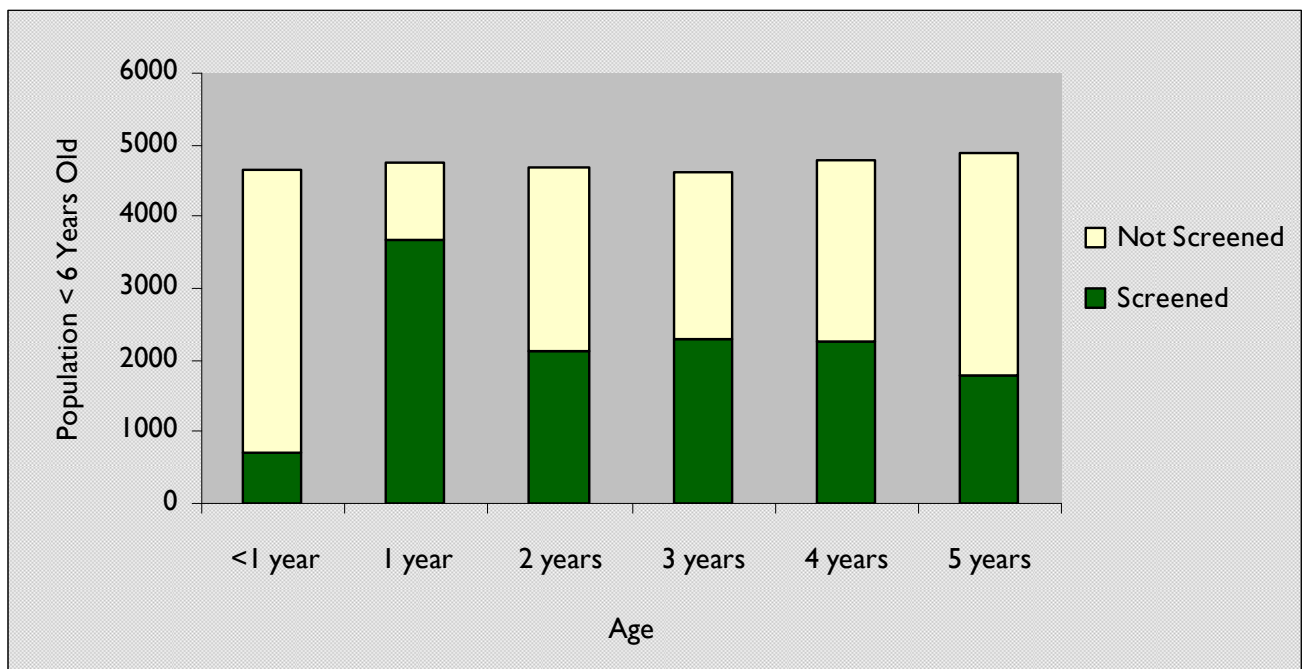
of at least 5 $\mu\text{g/dl}$ later. This information is disseminated to physicians in order to educate them about the importance of screening all children through age 6.

Screening and Age

As stated above, there is a challenge involved with screening all children under 6 years old. Looking within age groups, the highest screening rate (77.4%) is for children 1 year of age (Figure 2). This is the age at which the first recommended screening should

occur. A similar peak in screenings should appear in the 2-5 year old populations indicating that children are being consistently screened on an annual basis. However, screening appears to drop off once a child reaches 2 years of age.

Figure 2
Children Screened for CLP by Age, 2007



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Targeted Screening

Figure 3
Testing Ratios of Children Screened, 2007

ZIP	Testing Ratio	SPR
63106	1.30	1.6
63112	1.29	5.4
63113	1.21	7.3
63107	1.19	8.8
63111	1.18	3.5
63120	1.14	5.7
63115	1.08	7.0
63147	1.08	4.0
63118	1.06	5.7
63104	0.95	2.2
63108	0.95	4.5
63116	0.91	3.4
63110	0.83	3.6
63139	0.58	0.3
63109	0.57	1.8

disproportionately testing more children
 proportional testing of children
 disproportionately testing fewer children

Because designated high-risk areas of the City are consistently targeted for lead screening, more children are screened who have elevated blood lead levels (Figure 3). Figure 3 represents a ratio, demonstrating where CLP screenings occur proportional to the population of the ZIP code. It can be interpreted as follows: the 63112 ZIP code represents 8.1% of all lead screenings in 2007, but only 6.3% of the City's population under 6 years of age. Thus, the ratio of 1.29 means that proportional to its population, more screenings occur in 63112.

This table sheds light on a few important points regarding screening and childhood lead poisoning in St. Louis in general. First, it shows that, by and large, children are screened with greater frequency in ZIP codes that have higher screening prevalence rates. Second, it can be reasonably inferred that if 100% of children in the City were screened, the screening prevalence rate would be considerably lower as a greater proportion of the children that have not yet been screened for lead poisoning reside in ZIP codes with significantly lower prevalence rates.

Who Was Lead Poisoned in 2007?

Citywide Numbers

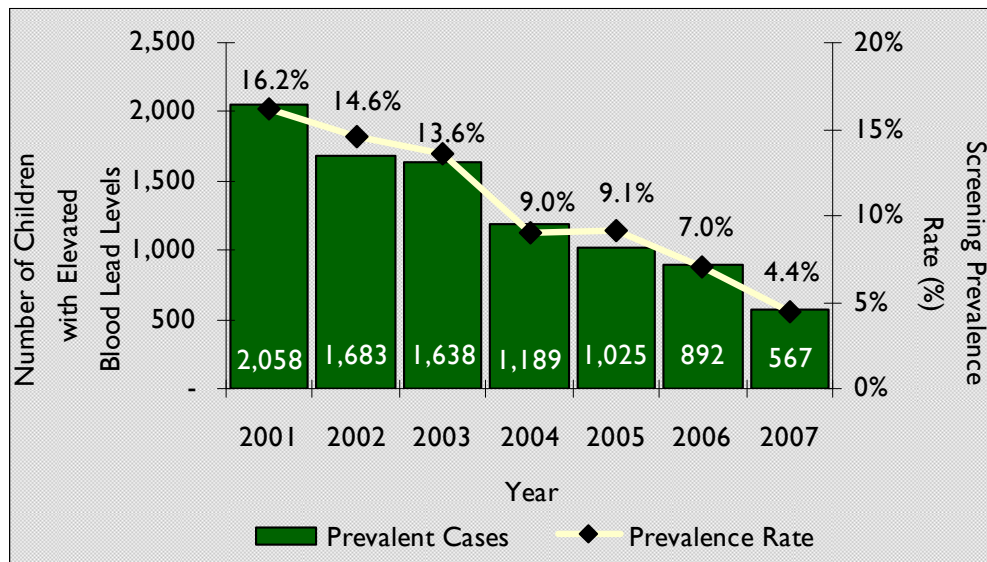
567 children were found to have elevated blood lead levels in 2007. The screening prevalence rate (SPR) of 4.4% is the number of children screened with blood lead levels ≥ 10 $\mu\text{g/dl}$ divided by the total number of children screened (567/12,836). It includes those who test elevated for the first time (incident cases) and those who had been diagnosed with CLP in a previous year (prevalent cases). It is difficult to reduce the lead body burden in children, especially if continued exposure occurs. Once poisoned, children can maintain elevated levels for some time unless aggressive measures are taken.

The City of St. Louis began to see a marked decrease in the number of children poisoned by lead in 2001. Between 2001 and 2003, the number of cases decreased modestly. 2004 was marked by a substantial decrease in SPR,

followed by a leveling out in 2005, a sizeable decrease again in 2006, and another in 2007 (Figure 4).

A review of the data from 2007 was encouraging in another way. The City wanted to determine if the decline in the prevalence rate from 2006 to 2007 could be partly attributed to a disproportionate increase in testing unexposed children. Some thought that the publicity surrounding lead paint in toys may lead to an increase in screening children from areas that do not have high rates of CLP. Parents who may have otherwise never thought about lead exposure because they live in a house without lead hazards might be more inclined to have their children screened if they hear about lead paint and toys on TV. However, upon reviewing the data, there was no significant increase in screenings from historically better areas.

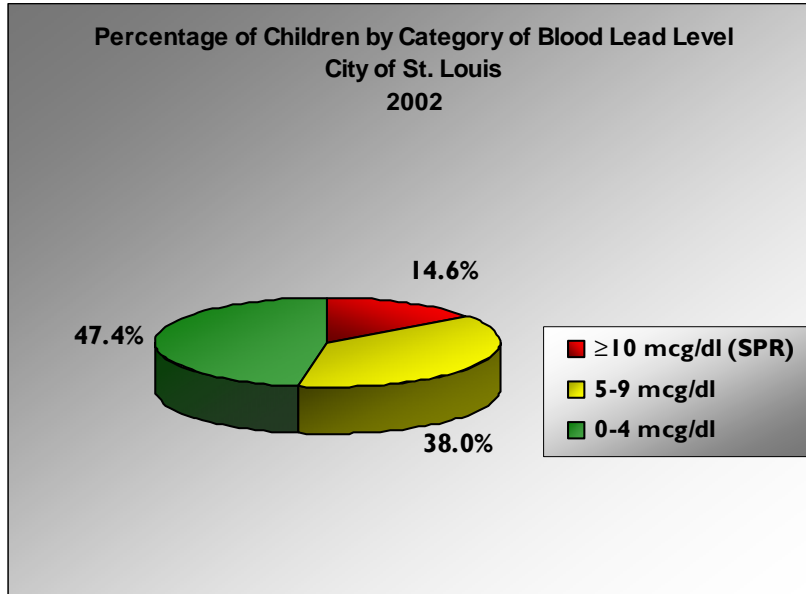
Figure 4
Screening Prevalence Rate, 2001-2007



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Case Distribution

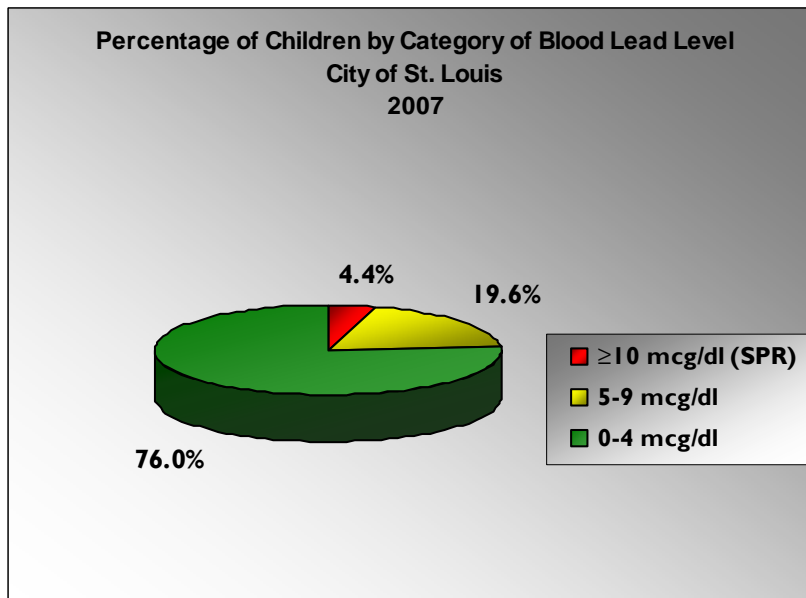
Figure 5
Blood Lead Results, 2002



A child's blood lead level is the best way to determine the severity of their exposure to lead. A simple way to think about lead exposure is to categorize various blood lead levels. The pie charts to the left have three categories of blood lead levels (BLL):

- Minimal or no lead exposure (green)
- Not lead poisoned but evidence of some exposure (yellow)
- Lead poisoned (red)

Figure 6
Blood Lead Results, 2007



The top chart represents blood lead levels in 2002, while the bottom chart is 2007 levels. Of significance is the dramatic increase in the proportion of children in the category of least exposure. In 2002, the 0-4 $\mu\text{g}/\text{dl}$ category accounted for less than half of St. Louis children. In 2007, over three quarters of children screened were in the most favorable category.

In early 2007, Lead Safe St. Louis (LSSL) employees began an outreach program aimed at primary prevention of CLP. Whenever a child was not lead poisoned but had a BLL of 5-9 $\mu\text{g}/\text{dl}$, the family is contacted, educated about ways to reduce lead exposure, and encouraged to have a lead inspection.

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Demographic Profile

CLP varies across several demographic variables. Age, race, and socioeconomic status all have correlations with lead poisoning. Below is a table outlining some of

these variables for CLP in 2007. Following, each of these variables and some others will be discussed at further length.

Figure 7
Demographic Profile of CLP, 2007

Demographic		Number Screened	Percent of Total Screened	Number ≥ 10 µg/dl	Screening Prevalence Rate (%)	Number of New Cases	Screening Incidence Rate (%)	0-4 µg/dl		5-9 µg/dl		≥ 10 ug/dl	
								N	%	N	%	N	%
Age	Less than 1 year old	692	5.4%	5	0.7	5	0.7	612	88.4%	75	10.8%	5	0.7%
	1 year old	3,678	28.7%	186	5.1	159	4.4	2,765	75.2%	727	19.8%	186	5.1%
	2 years old	2,138	16.7%	137	6.4	86	4.3	1,454	68.0%	547	25.6%	137	6.4%
	3 years old	2,285	17.8%	116	5.1	57	2.8	1,693	74.1%	476	20.8%	116	5.1%
	4 years old	2,257	17.6%	70	3.1	24	1.2	1,784	79.0%	403	17.9%	70	3.1%
	5 years old	1,786	13.9%	53	3.0	14	0.9	1,445	80.9%	288	16.1%	53	3.0%
Gender	Female	6,255	48.7%	255	4.1	155	2.7	4,809	76.9%	1,191	19.0%	255	4.1%
	Male	6,581	51.3%	312	4.7	190	3.1	4,944	75.1%	1,325	20.1%	312	4.7%
Race	African American	9,114	71.0%	465	5.1	269	3.2	6,598	72.4%	2,051	22.5%	465	5.1%
	White	2,522	19.6%	66	2.6	49	2.0	2,171	86.1%	285	11.3%	66	2.6%
	Other	457	3.6%	11	2.4	10	2.2	397	73.7%	131	24.3%	11	2.0%
	Unknown	743	5.8%	25	3.4	17	2.4	587	88.8%	49	7.4%	25	3.8%

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Age and CLP

Age is one factor that can affect a child's chances for becoming poisoned by lead (Figure 8). Children 2 years of age had the highest SPR in 2007. These children are more active in exploring their environments and also have poor hand-washing skills. Children at 1 year of age are less mobile than children at 2 years of age. Two year olds may also have higher screening prevalence rates than one year olds because lead stays in a child's blood stream and is difficult to get rid of once a child becomes poisoned.

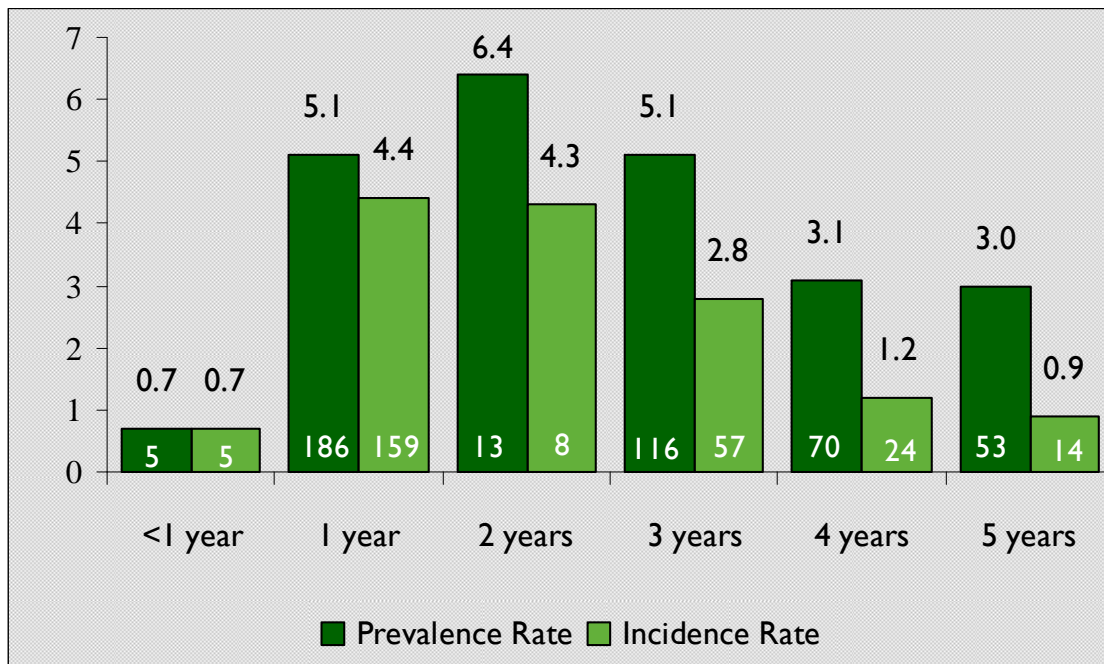
Therefore, it is important to also look at the screening incidence rate (SIR),

which only includes new cases of lead poisoning. The SIR for 2 year olds (4.3%) is virtually the same as that for 1 year olds (4.4%), and it continues to decrease for 3 year olds and recede in 4 and 5 year olds as well.

The SPR for children of all age groups decreased in 2007 from 2006 with a citywide decrease from 7.0% to 4.4%.

The screening prevalence and incidence rates for children less than 1 year of age are identical in 2007. Children at this age are young enough that they have rarely been tested for CLP before. Thus, most cases are new cases.

Figure 8
Prevalent and Incident Cases of Lead Poisoning by Age, 2007



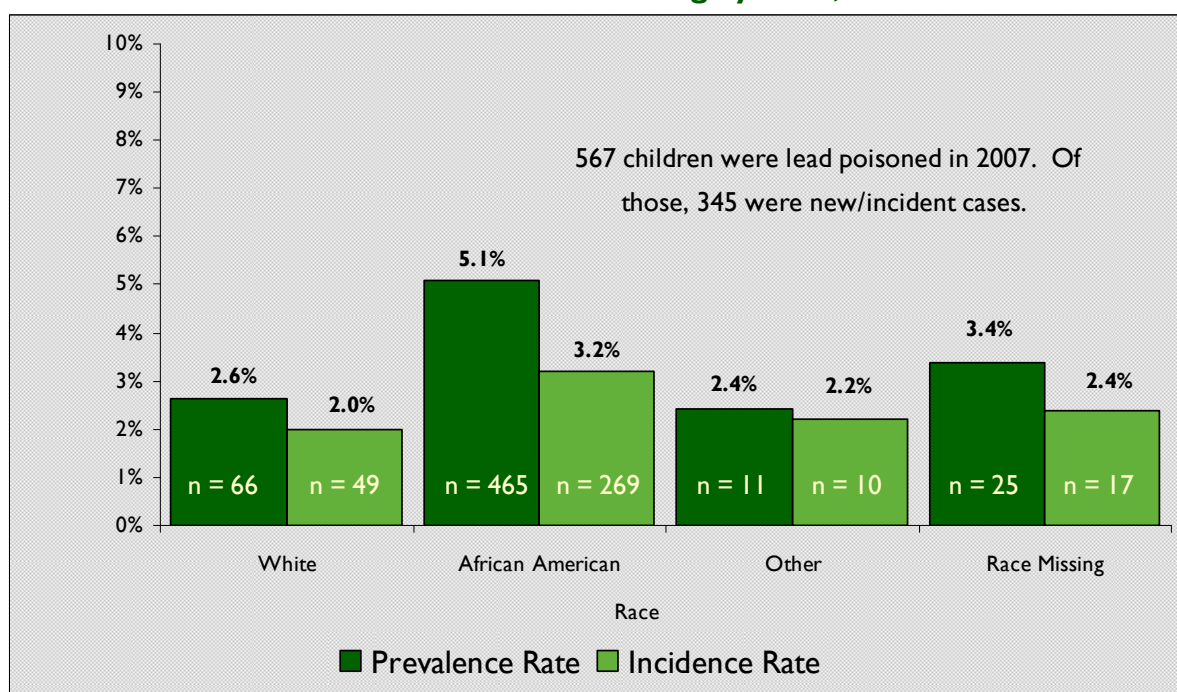
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Race and CLP

In and of itself, race is not an indicator of CLP. However, other risk factors such as poverty, poor housing stock, insufficient access to medical care, and inadequate quality medical care are higher among minorities and these

factors contribute to CLP. In 2007, 71% of the children screened for CLP were African American. However, African American children accounted for 82% (465/567) of all lead poisoned children in 2007 (Figure 9).

Figure 9
Prevalent and Incident Cases of Lead Poisoning by Race, 2007



Gender and CLP

An examination of gender and CLP does not show any significant differences between males and females. Nearly even numbers of males and females were tested for CLP in 2007. Females make up about 49% of children tested in

2007 while males make up about 51%. Males were slightly more likely to be lead poisoned (SPR=4.7%) than females (SPR=4.1%) in 2006 (refer back to Figure 6).

When Does Childhood Lead Poisoning Occur?

Seasonality and CLP

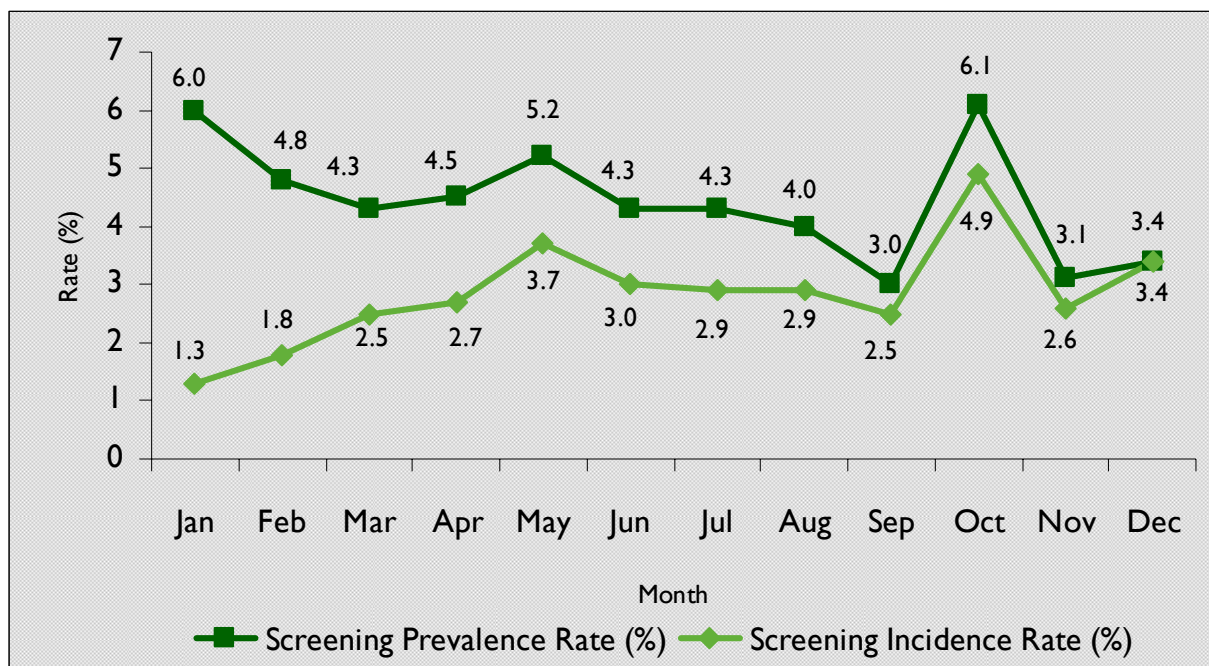
CLP can occur at anytime throughout the year. However, it is typical to see higher rates of CLP in the warmer months of the year. Several factors may contribute to higher rates during warmer months. Children play outside more in the summer and may be exposed to lead dust in the soil. Also, contaminated dirt tracked into the house by others may lead to higher rates.

Additionally, many families (especially those without air conditioning) open the windows in warmer months. This could lead to higher CLP rates in two ways. First, the friction of opening and closing windows painted with lead paint can

create additional lead paint chips and dust. Second opening windows allows wind to blow through a house, which could exacerbate exposure to airborne lead dust.

Another important consideration when evaluating the seasonality of CLP is the imperfect nature of reporting mechanisms. Oftentimes, blood lead tests, which get delayed for various reasons from the previous year, accumulate and then get reported as “January” screenings in the next year, which has lead to historically higher rates of CLP in the beginning of the calendar year (Figure 10).

Figure 10
Prevalent and Incident Cases of Lead Poisoning by Month, 2007



Where Does Childhood Lead Poisoning Occur?

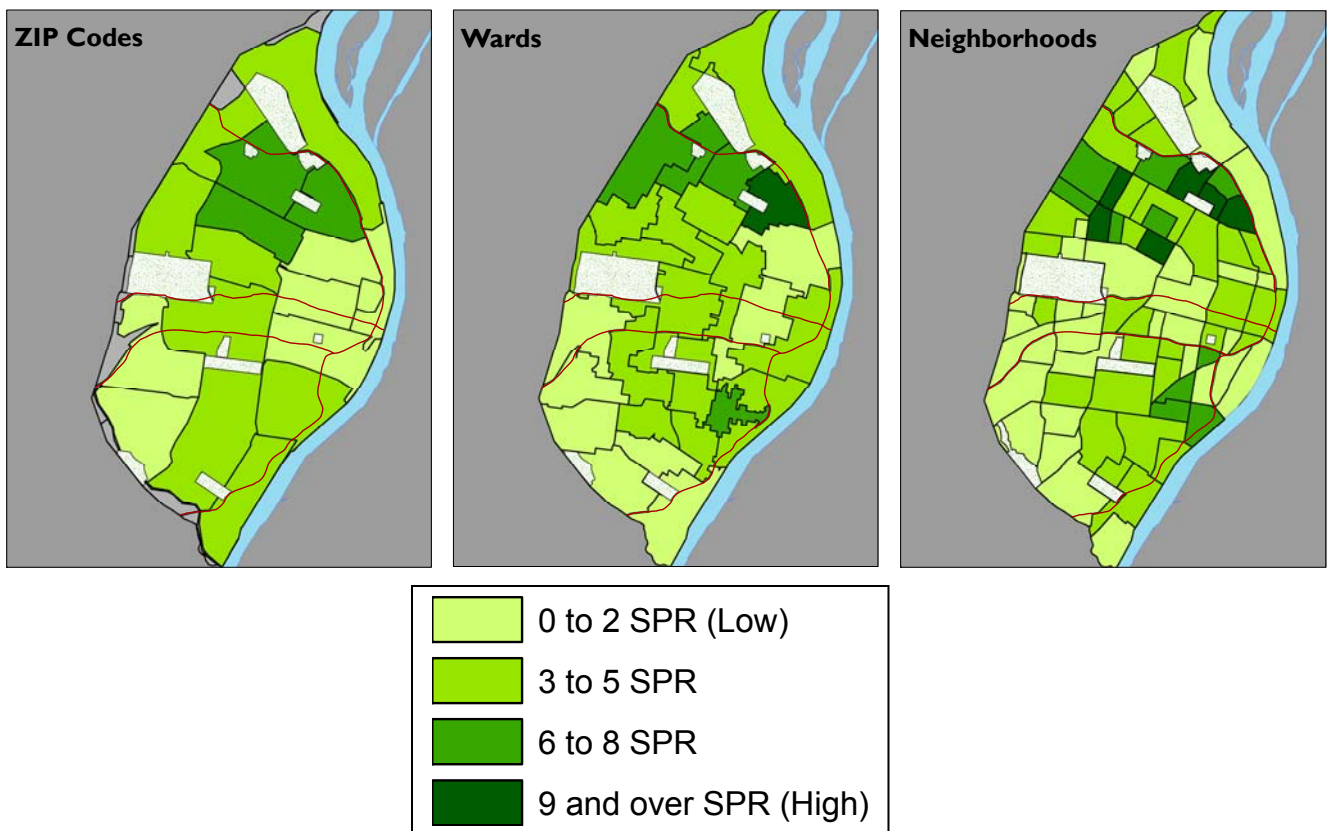
Geography and CLP

The use of geography in lead poisoning surveillance assists the Health Department in developing targeted programs in high prevalence areas. It also allows for the analysis of the CLP problem on a smaller, more local scale. Maps can help local leaders understand the problem as it affects their community and motivate them to develop, promote and participate in prevention activities.

Areas of lower socioeconomic status and older, more deteriorated housing stock generally have higher rates of CLP

than more affluent areas. The maps below provide three thumbnail views of CLP in St. Louis with increasing levels of acuity ([Figure 11](#)). The first map is of the 18 ZIP codes contained within the City. The second is of the 28 aldermanic wards. The final map displays the City's 79 various neighborhoods. The darker colored areas represent the places where CLP is most prevalent (see legend below). White areas with spots are assorted City parks. Larger and more detailed maps for both prevalence and incidence rates are provided later in the appendix.

Figure 11
Geography of Lead Poisoning Prevalence, 2007



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ZIP Codes and CLP

There are 18 ZIP Codes completely contained in the City of St. Louis. In 2007, no City ZIPs were in the category of greatest concern (prevalence rate of 9 or more). The Zip Codes with the five highest rates were 63107 (8.8),

63113 (7.3), 63115 (7.0), 63120 (5.7), and 63118 (5.7). The first four of these are located in the northern region of the City, while 63118 is in the southeastern section.

Wards and CLP

There are 28 aldermanic wards in St. Louis. The prevalence rate in these wards ranged from zero in 2 different wards to 9.1 in Ward 3. Ward 3 is the only ward to remain in the category of most concern, barely over the threshold. The wards with the five highest prevalence rates in 2007 were Ward 3 (9.1), Ward 1 (7.4), Ward 21

(7.3), Ward 20 (6.8), and Ward 22 (6.0). As with ZIP Codes, 4 of the top five Wards are in northern areas of the City and one is in the southeastern region.

The five wards with the lowest prevalence rates in 2007 were Ward 12 (0.0), Ward 23 (0.0), Ward 16 (1.0), Ward 24 (1.5), and Ward 13 (1.9).

Neighborhoods and CLP

There are 79 neighborhoods in the City of St. Louis. Due to population factors, the number of children screened in City neighborhoods ranges from 992 to zero. Accordingly, rates where small numbers of children are screened need to be interpreted with caution, as small numbers make for volatile rates. However, among neighborhoods with adequate numbers of children screened, prevalence rates ranged from zero in several neighborhoods to over 11.0 in two neighborhoods.

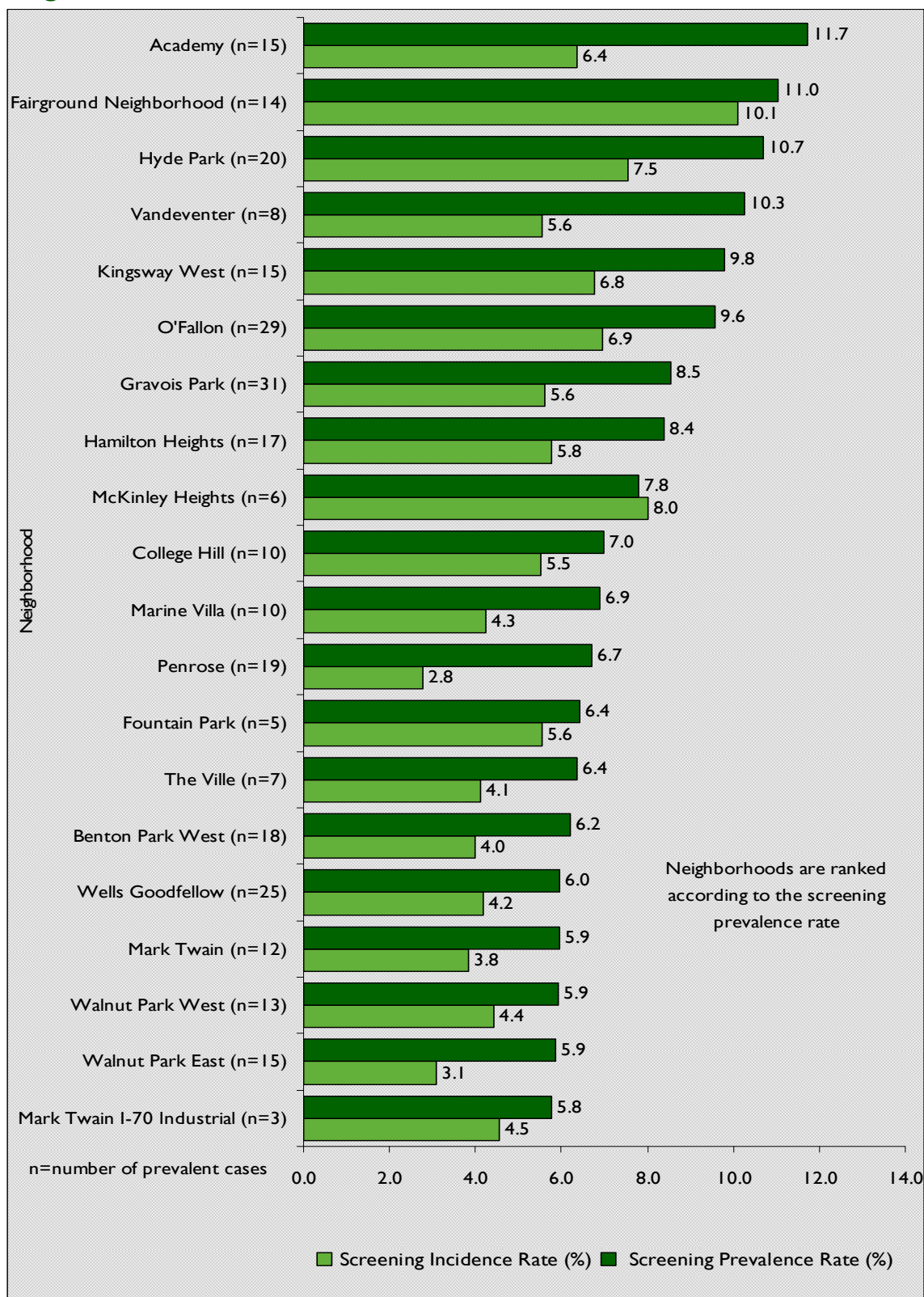
The five neighborhoods with the highest

rates of CLP were Academy (11.7), Fairground (11.0), Hyde Park (10.7), Vandeventer (10.3), and Kingsway West (9.8).

The eight neighborhoods with zero cases of CLP and a significant number of children screened are Ellendale, The Hill, Visitation Park, Clifton Heights, Columbus Square, Princeton Heights, Lindenwood Park, and Boulevard Heights.) For a graphic displaying the 20 neighborhoods with the highest CLP rates, see [Figure 12](#).

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Figure 12
Prevalent and Incident Cases of Lead Poisoning for the Top 20
Neighborhoods in St. Louis, 2007



What Did City Programs Do in 2007?

Programmatic Activity

The childhood lead poisoning program in the City of St. Louis is a partnership of several City agencies. The Building Division, Community Development Administration, Department of Health, and the Problem Properties Court work together, performing various functions.

The majority of these functions revolve around issues of education, outreach, building inspections, hazard controls, enforcement, and securing funding for continuing or expanding existing programs.

Education and Outreach

In 2007, the City of St. Louis launched a media campaign to heighten awareness about the dangers of CLP. The media

campaign consists of several methods to alert the public to the dangers of lead in and around the home:

- Public service announcements on television in several different languages;
- Promotional giveaways of items such as baby bibs, stickers, pencil cases, etc.;
- Advertisements on billboards, metro buses, and bus stops;
- New, user-friendly website: <http://www.leadsthecity.org/>
- Television documentary on the lead program.

Outreach takes other forms as well. Even though a child is classified as lead poisoned only if their blood lead level is at or above 10 µg/dl, there is evidence of environmental exposure if a child has a level in the 5 to 9 µg/dl range. In order to prevent further exposure, the City initiated the 5 to 9 Campaign. This program is a form of outreach whereby City employees attempt to contact the families of children who have been screened for lead and were not poisoned but had a blood lead level indicative of exposure. When contacting the family, City employees educate the parents as to how to best prevent lead exposure in the home as well as encourage the family to have their home tested for lead.

In addition to the Media Campaign and 5 to 9 Program, the City conducts regular

outreach and education sessions throughout the community in schools, daycares and other venues where there are children or caretakers. These sessions usually include information on sources of lead, health consequences, and methods to reduce lead exposure like proper cleaning techniques, hygiene and nutrition. All of these efforts at community outreach are aimed at primary prevention and raising awareness so that the general public can prevent lead exposure on a daily basis.

Although St. Louis has one of the highest rates of children screened in the country, increasing the screening rate remains a difficult challenge. In 2007, 45.2% of children under six years of age were screened for CLP. While the City tests over one thousand children per year, St. Louis relies on pediatric

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physicians to screen the majority of St. Louis children. Several efforts to educate physicians about the importance of screening all children for CLP through age six have been made.

Many doctors seem to be under the impression that if a child is not lead poisoned by the age of 2, there is no need to test for CLP anymore because age 2 is the age with the highest rate of CLP. The City conducted a study to evaluate the veracity of this notion. The study revealed that 30 percent of children aged one or two with undetectably low blood lead levels,

would, in a later year, test with at least 5 µg/dl of lead in their blood. This information was disseminated to local physicians in order to encourage them to continue screening for CLP up to age six.

Another form of education offered in 2007 was through one of the City's community partners. The St. Louis Lead Prevention Coalition offers Lead Safe Work Practices Training courses free of charge. This course teaches homeowners, landlords and contractors how to rehab/remodel in a lead safe manner.

Building Inspections and Lead Hazard Controls

The Lead Inspection and Hazard Control Section of the Building Division offers environmental investigations and remediation support. The unit consists of certified lead hazard inspectors, certified lead abatement workers and

data entry clerks. Lead inspections are performed on a request or on a referral basis from a variety of sources. The initiation for an inspection can occur in one of three ways.

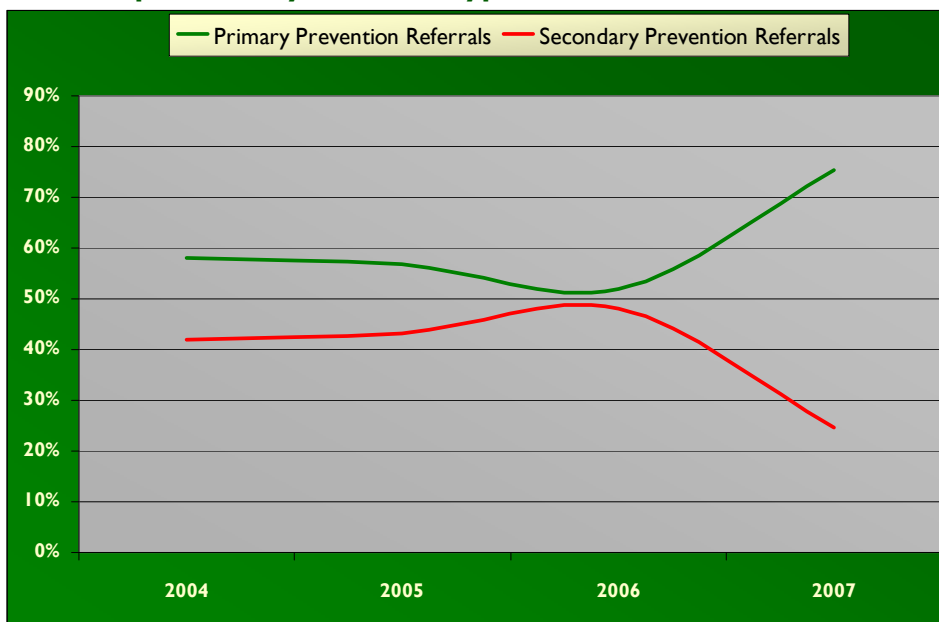
1. Any child under 6 years old found to have a **blood level of 10 µg/dl or greater** automatically initiates an inspection of the child's home;
2. **Legally required** inspections, such as the Housing Conservation District ordinance, which requires a visual inspection upon a residential sale or new rental tenant;
3. **Voluntary Requests from citizens** via the LSSL hotline or other numerous points of contact throughout the community.

When a lead inspection referral is initiated by an elevated blood lead level (EBL), efforts to inspect and remediate the home are considered *secondary prevention*, as a child has already been lead poisoned. Actions are designed to mitigate the effects and prevent future exposure. In 2004, nearly half of all

inspections were initiated by an EBL. Because the City has shifted its focus from one of reactive to proactive, *primary prevention* referrals now account for a large majority of inspection referrals. In 2007, over three-quarters of referrals were *not* initiated by a lead poisoned child (Figure 13).

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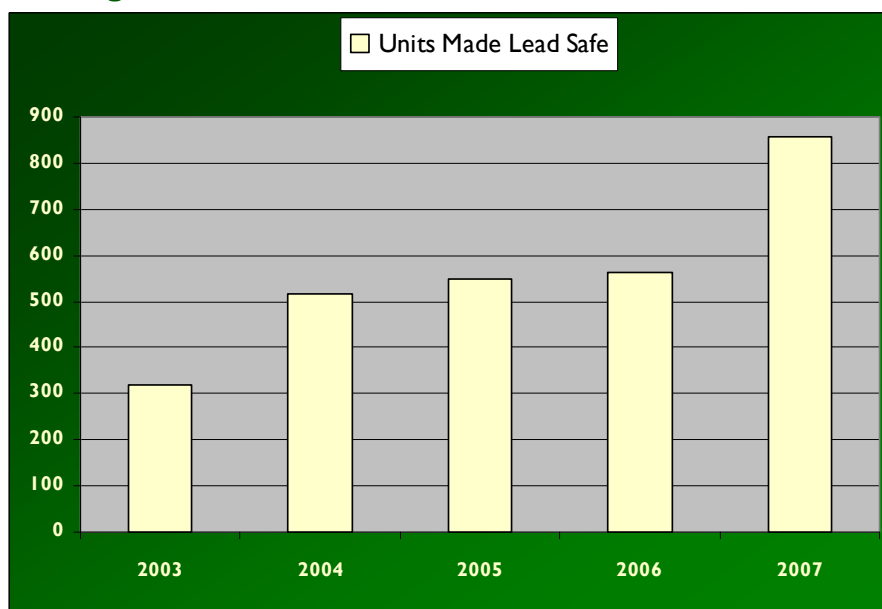
Figure 13
Lead Inspections by Referral Type, Fiscal Year 2004-2007



2007 also witnessed a dramatic increase in units made lead-safe. Remediation is the process by which lead hazards are fixed in a house. In 2007, 856 homes were made lead-safe via remediation.

The number of housing units made lead-safe has increased steadily over the past five years. However, between 2006 and 2007, the number increased by over 52 percent (Figure 14).

Figure 14
Housing Units Made Lead Safe via Hazard Controls, 2003-2007



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Courts

When lead hazards are not corrected within the specified time period, the property is referred to the Problem Properties Court for legal action. In 2007, 451 cases were arraigned for lead

hazard violations. This resulted in 19 properties being remediated via the judicial process and \$7,860.50 collected in fines (Figure 15).

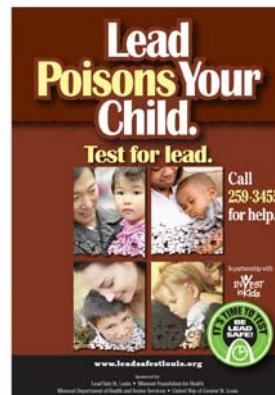
Figure 15
Problem Properties Court Activity, 2006-2007

Arraigned Cases		Units Remediated via Courts		Fines Collected	
2006	2007	2006	2007	2006	2007
286	451	16	19	\$3,807.00	\$7,860.50

Lead Safe St. Louis

2007 Accomplishments and Activities

Provided by Jeanine Arrighi, Director of Lead Safe Saint Louis



- ⌠ **The Screening prevalence rate dropped to a record low of 4.4% of children with blood lead levels at or above 10 micrograms per deciliter (µg/dl), reflecting a 65% reduction over 2003's rate (and more than 30% reduction over 2006's rate).**
- ⌠ **Only 85 children had blood lead levels at or above 20 µg/dl in 2007 compared to 217 in 2003.**
- ⌠ **More than 76% of children tested in 2007 had blood lead levels below 5 µg/dl compared to 52% in 2003.**
- ⌠ **Met HUD goals in all categories – attained Green Status entire year.**
- ⌠ **Building Division completed a record number of remediation projects – 519.**
- ⌠ **City programs exceeded HUD Benchmark Goal of 429 units by 100 units.**
- ⌠ Continued proactive vs. reactive approach to inspection and remediation as units are processed on a primary prevention basis versus secondary prevention: More than 75% of requests for lead inspections were primary prevention, and less than 25% of requests resulted from a child with a blood lead level at or above 10 µg/dl (EBL) prior to request for service and EBL cases received priority response.
- ⌠ Enrolled more than 500 units into Window Replacement and Multi-Family Rehab Programs – both primary prevention programs.
- ⌠ Unit pricing system developed for Certified Lead Abatement Contractors now used exclusively allowing all contractors to have jobs at the same time: as of 12/31/07 there were 40 jobs assigned to the various 10 contractors – significantly decreasing the time it takes from financial application approval to job completion.
- ⌠ Increased contractor capacity by 43% with the addition of three new certified contractors in 2007.

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- ⬢ Expanded the lead inspection crew from 9 to 11 inspectors to accommodate the increased inspection load brought about by the success of the Window Replacement and Multi-Family Rehab Programs.
- ⬢ Established partnership with BJC OB/GYN Clinic – Heavy Metal Project – where primary prevention referrals are made for Medicaid pregnant women’s homes to be remediated prior to birth of child – student nurses in Fall 2007 internships recruited 32 pregnant women for lead inspections.
- ⬢ Established partnership with City’s Drug Court – after completion of a 12 month program, the Building Division is contacted to screen units before moms are reunited with their children and placed in a unit.
- ⬢ Nearing completion of the development and implementation of a new, state of the art, web-based operating system for all participants in City’s Lead Program.
- ⬢ Children whose blood lead levels fall between 5 and 9 µg/dl were targeted for lead inspections with a special “5 to 9 Canvassing” program. These children are not classified as EBL according to CDC, but these blood lead levels show evidence of lead exposure – 1377 children in 8 City Neighborhoods were sought with 445 contacts and 143 inspection referrals made.
- ⬢ LSSL Hotline received a record number of calls requesting lead inspections: 243 of 293 calls.
- ⬢ 22 families were permanently relocated to lead safe homes in 2007.
- ⬢ LSSL’s community collaborations were showcased at an EPA Region 5 and 7 Conference highlighting the collaborative efforts of the Enforcement Committee of the Mayor’s Task Force.
- ⬢ More than 50 lead abatement contractor staff attended a “Contractor Appreciation Day” during Lead Safe Kids & Homes Recognition in October receiving free blood lead testing and a continental breakfast.
- ⬢ LSSL collaborated with Angie’s List, a national consumer organization, during their Lead Paint Education Tour in October offering blood lead testing and lead safe work practice training.
- ⬢ In response to the hundreds of toy and consumer recalls, the Outreach and Education Committee of the Mayor’s Task Force spearheaded a revision of the program’s “Test for Lead” poster – “Don’t play games with your child’s health,” reminds parents that the greatest risk of lead poisoning is deteriorating lead-based paint.
- ⬢ New ads “Don’t Toy with Your Child’s Health” were produced by the City’s Communications Division.

Limitations and Discussion

Surveillance data are subject to limitations and the interpretations of the findings reported must be viewed with these limitations in mind. Children are not randomly tested for lead exposure. Screening for lead poisoning in the City of St. Louis is weighted towards those at greatest risk, and the rates in this report are likely higher than true population rates. True childhood lead poisoning prevalence and incidence rates require that all children at risk have an equal chance of selection into the population studied. Only 45% of St. Louis City children who are at risk of lead poisoning are included in the surveillance database. The missing 55% could represent children tested but not reported to the Health Department. However, it is more likely that the majority of children not appearing in the surveillance database were not screened for lead in 2007.

Traditionally in the City of St. Louis, children of lower socio-economic status were more likely to be screened for lead exposure than their affluent cohorts. This is largely due to the screening practices of experienced community health centers and because poor areas tend to be targeted for lead screening and education more than affluent areas due to higher screening

prevalence and incidence rates in underprivileged areas.

A screening rate of 45% in 2007, while encouraging and much higher than most areas of the country, indicates that private providers are still failing to screen children for lead poisoning in the City of St. Louis. Even though the prevalence of lead poisoning in the City of St. Louis appears to be on a continual decline, still not enough is known about whether the entire high-risk population is being reached.

Also, providers may choose not to test children in later years because they do not consider them to be at great risk. Dissemination of the aforementioned cohort study's two findings that (1) 8.1% of children retested in later years following a "negative" screening at age 2 were lead poisoned, and (2) 30% of children with undetectably low levels at these ages would later have a blood level of 5 µg/dl or greater, could mitigate the reluctance of some providers to test in later years.

The decreasing prevalence rate is extremely encouraging; however, certain areas of the City still have very high rates and there is still much work to be done.

Summary

The rate of childhood lead poisoning in the City of St. Louis decreased again to an all-time low of 4.4% in 2007. This is due to the efforts of several City agencies as well as numerous private partnerships, aimed at the facilitation of outreach, education, policy and collaboration.

While the City has had many successes in combating childhood lead poisoning, universal screening remains a hurdle. Less than half of City children under 6 years of age were screened for lead poisoning in 2007. This figure represents negligence on behalf of healthcare providers and pediatric physicians. Failure to screen all of their patients less than 6 years of age must be remedied. The entire City of St. Louis is designated “high-risk.” As such, guidelines call for universal testing of children through age 6.

The City of St. Louis is currently developing a program to increase the number of children screened for lead poisoning. Five nurses and five health educators have been hired to work in various aspects of the City’s lead program. They are charged with developing innovative methods to reach out to physicians, community leaders, and parents in order to stress the importance of universal screening. After six months their efforts will be evaluated to determine which programs have been most effective at increasing awareness and ultimately screenings for childhood lead poisoning.

Until all City children receive the recommended annual screening from their primary health care provider, surveillance data will not reflect a true

picture of childhood lead poisoning in the City of St. Louis. That picture would undoubtedly be one of a healthier environment for our children, as more children screened would result in a wider net cast to find children exposed to lead, mitigate its effects, and prevent further exposure.

The preferred remedy for the lead poisoning problem is to prevent children from ever being poisoned in the first place through primary prevention. Methods include providing lead-safe homes and play areas, educating people about lead hazards and how to protect children from them, and improving childhood nutrition to prevent the absorption of lead by their bodies.



When we cannot prevent initial lead poisoning, we must turn to the second best method for controlling the problem, secondary prevention. This is the early detection and treatment of poisoned children and the removal or reduction of lead hazards from their environment. Early detection and treatment can help health care providers reduce a child’s lead body burden and can help the community and parents identify lead hazards and work to remove them. However, early detection is possible only if children receive lead tests.

Since the majority of our children still do not receive lead tests, we must assume that many health care providers and families are still uninformed about the risks and long-term effects of lead poisoning.

Data Tables

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Table I
Childhood Lead Poisoning Rates, 1971-2007

Lead Poisoning				
Year	Threshold	# Screened	% Positive	
1971	40 µg/dl	4,334	28.0%	
1972	40 µg/dl	1,819	34.0%	
1973	40 µg/dl	7,426	32.3%	
1974	40 µg/dl	5,835	27.0%	
1975	40 µg/dl	11,041	22.9%	
1976	30 µg/dl	13,246	28.0%	
1977	30 µg/dl	14,375	24.5%	
1978	30 µg/dl	13,687	15.2%	
1979	30 µg/dl	12,511	12.5%	
1980	30 µg/dl	12,469	11.4%	
1981	30 µg/dl	11,449	12.4%	
1982	30 µg/dl	11,778	10.9%	
1983	30 µg/dl	11,406	7.6%	
1984	30 µg/dl	12,982	8.2%	
1985	30 µg/dl	12,308	11.0%	
1986	25 µg/dl	11,324	16.4%	
1987	25 µg/dl	13,314	10.3%	
1988	25 µg/dl	14,364	9.1%	
1989	25 µg/dl	12,317	7.4%	
1990	25 µg/dl	12,202	6.5%	
1991	25 µg/dl	12,799	4.4%	
1992	10 µg/dl	17,715	48.5%	
1993	10 µg/dl	17,850	26.8%	
1994	10 µg/dl	18,541	28.1%	
1995	10 µg/dl	20,573	23.5%	
1996	10 µg/dl	13,305	27.6%	
1997	10 µg/dl	13,833	24.2%	
1998	10 µg/dl	13,205	24.8%	
1999	10 µg/dl	14,580	22.9%	
2000	10 µg/dl	11,260	31.1%	
2001	10 µg/dl	12,743	16.2%	
2002	10 µg/dl	11,497	14.6%	
2003	10 µg/dl	12,011	13.6%	
2004	10 µg/dl	13,249	9.0%	
2005	10 µg/dl	11,227	9.1%	
2006	10 µg/dl	12,779	7.0%	
2007	10 µg/dl	12,836	4.4%	

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Table 2
Healthcare Providers of Blood Lead Screenings, 2006-2007

Provider	Number Screened		Percent of Total Screened		Number \geq 10 $\mu\text{g/dl}$		SPR (%)		New Cases		SIR (%)	
	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007
St. Louis City Health Department	1,602	1,190	12.5%	9.3%	70	35	4.4	2.9	31	25	2.1	2.2
Connect Care	1,313	346	10.3%	2.7%	113	24	8.6	6.9	55	10	4.8	3.4
Community Health Centers	4,153	5,729	32.5%	44.6%	381	308	9.2	5.4	211	180	5.6	3.5
Hospitals	1,549	1,525	12.1%	11.9%	102	70	6.6	4.6	75	44	5.3	3.1
Group Practice/Private Physician	4,133	4,038	32.3%	31.5%	222	130	5.4	3.2	136	86	2.5	2.2
Other Categories	29	8	0.2%	0.1%	4	0	13.8	0.0	4	0	3.6	0.0
Grand Total	12,779	12,836	100.0%	100.0%	892	567	7.0	4.4	512	345	4.0	2.9

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Table 3
Childhood Lead Poisoning by ZIP Code, 2007

ZIP Code	Population <6 Years	Number Screened	Percent Screened	Number ≥ 10 µg/dl	SPR (%)	New Cases	SIR (%)	Total Housing Units	Percent Vacant	Percent Occupied	Total Occupied	Percent Owner Occupied	Percent Renter Occupied	Percent Pre-1950 Housing
63107	1,551	765	49.3%	67	8.8	41	6.3	7,929	28.7	71.3	5,655	44.8	55.2	93.2
63113	1,307	655	50.1%	48	7.3	22	3.8	8,540	26.4	73.6	6,286	46.9	53.1	95.8
63115	2,050	994	48.5%	70	7.0	41	4.6	12,421	19.5	80.5	9,998	55.3	44.7	91.1
63120	1,079	596	55.2%	34	5.7	20	3.8	4,848	18.5	81.5	3,949	58.5	41.5	87.5
63118	3,214	1,475	45.9%	84	5.7	50	3.7	15,326	25.6	74.4	11,409	37.4	62.6	92.4
63112	1,729	983	56.9%	53	5.4	35	3.9	12,574	20.1	79.9	10,045	35.5	64.5	93.6
63108	714	310	43.4%	14	4.5	10	3.4	11,675	13.2	86.8	10,135	26.7	73.3	87.5
63147	915	455	49.7%	18	4.0	12	2.8	5,071	12.6	87.4	4,432	66.8	33.2	79.7
63110	1,886	663	35.2%	24	3.6	13	2.1	10,179	17.8	82.2	8,371	39.3	60.7	88.9
63111	1,889	963	51.0%	34	3.5	19	2.1	10,508	16.3	83.7	8,797	44.7	55.3	87.3
63116	4,114	1,721	41.8%	59	3.4	38	2.3	22,844	10.3	89.7	20,497	57.9	42.1	83.1
63101	78	43	55.1%	1	2.3	0	0.0	730	41.2	58.8	429	7.2	92.8	36.1
63103	102	43	42.2%	1	2.3	1	2.3	3,609	18.6	81.4	2,939	1.3	98.7	65.5
63104	1,811	821	45.3%	18	2.2	10	1.3	9,847	18.6	81.4	8,016	36.4	63.6	86.4
63109	2,078	544	26.2%	10	1.8	8	1.5	15,042	4.5	95.5	14,358	61.8	38.2	81.8
63106	1,395	828	59.4%	13	1.6	11	1.4	6,250	32.0	68.0	4,247	13.3	86.7	85.2
63139	1,517	400	26.4%	1	0.3	0	0.0	12,344	6.3	93.7	11,569	61.3	38.7	76.4
63102	23	18	78.3%	0	0.0	0	0.0	870	24.8	75.2	654	2.1	97.9	74.4
Fringe ZIPs	917	390	42.5%	16	4.1	12	3.2	5,747	8.0	92.0	5,290	66.5	33.5	59.9
Unknown	-	169	-	2	1.2	2	1.3	-	-	-	-	-	-	-
City Total	28,369	12,836	45.2%	567	4.4	345	2.9	176,354	16.6	83.4	147,076	46.9	53.1	85.3

*ZIP codes with small populations of children under 6 should be interpreted with caution

**Fringe Zips are those on the western edge of the City that overlap a small part of the City from the County

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Table 4
Childhood Lead Poisoning by Ward

Ward	Population <6 Years	Number Screened	Percent Screened	Number ≥ 10 µg/dl	SPR (%)	New Cases	SIR (%)	Total Housing Units	Percent Vacant	Percent Occupied	Total Occupied	Percent Owner Occupied	Percent Renter Occupied	Percent Pre-1950 Housing
Ward - 03	908	581	64.0%	53	9.1	35	7.1	5,670	28.9	71.1	4,031	44.3	55.7	93.3
Ward - 01	940	486	51.7%	36	7.4	19	4.4	5,735	19.4	80.6	4,621	58.3	41.7	93.5
Ward - 21	956	480	50.2%	35	7.3	23	5.4	5,899	16.8	83.2	4,909	54.9	45.1	89.6
Ward - 20	907	736	81.1%	50	6.8	27	4.1	5,693	28.4	71.6	4,076	37.5	62.5	93.3
Ward - 22	795	638	80.3%	38	6.0	23	4.0	5,585	24.5	75.5	4,214	46.8	53.2	90.9
Ward - 18	750	449	59.9%	26	5.8	15	3.7	6,522	21.5	78.5	5,120	38.0	62.0	93.9
Ward - 04	793	507	63.9%	29	5.7	12	2.7	6,321	25.2	74.8	4,727	47.2	52.8	94.8
Ward - 15	1,168	514	44.0%	28	5.4	18	3.7	6,437	13.8	86.2	8,846	45.8	54.2	93.4
Ward - 27	900	550	61.1%	29	5.3	17	3.4	4,669	12.8	87.2	4,073	71.6	28.4	82.7
Ward - 26	870	558	64.1%	28	5.0	18	3.5	6,361	21.9	78.1	4,966	35.6	64.4	91.6
Ward - 09	1,316	523	39.7%	26	5.0	17	3.5	7,048	22.7	77.3	5,449	36.2	63.8	89.6
Ward - 02	1,027	443	43.1%	21	4.7	13	3.1	4,863	15.6	84.4	4,106	60.1	39.9	78.8
Ward - 28	544	165	30.3%	7	4.2	6	3.8	7,803	9.6	90.4	7,055	32.5	67.5	93.3
Ward - 17	682	346	50.7%	14	4.0	8	2.5	7,491	17.3	82.7	6,192	25.0	75.0	85.2
Ward - 10	1,464	326	22.3%	12	3.7	7	2.2	6,996	8.9	91.1	6,374	46.9	53.1	77.4
Ward - 19	693	330	47.6%	12	3.6	8	2.6	5,198	22.5	77.5	4,030	16.6	83.4	87.6
Ward - 25	1,365	749	54.9%	27	3.6	14	2.0	6,348	17.2	82.8	5,258	41.6	58.4	91.7
Ward - 08	1,279	341	26.7%	12	3.5	6	1.9	6,488	15.4	84.6	5,492	37.6	63.4	94.9
Ward - 07	1,097	398	36.3%	14	3.5	9	2.4	7,926	23.4	77.6	6,154	23.6	76.4	87.9
Ward - 14	1,310	428	32.7%	13	3.0	10	2.4	5,874	8.3	91.7	5,388	55.6	44.4	92.4
Ward - 06	1,101	616	55.9%	15	2.4	9	1.5	6,314	19.8	80.2	5,061	37.4	62.6	82.8
Ward - 11	1,123	473	42.1%	11	2.3	7	1.5	6,198	14.7	85.3	5,290	53.5	46.5	79.9
Ward - 05	1,224	789	64.5%	17	2.2	13	1.7	6,878	32.6	67.4	4,637	19.9	80.1	84.7
Ward - 13	1,389	370	26.6%	7	1.9	5	1.4	5,987	8.4	91.6	5,484	65.3	34.7	92.9
Ward - 24	832	197	23.7%	3	1.5	2	1.0	6,819	7.3	92.7	6,321	58.5	41.5	79.1
Ward - 16	1,034	205	19.8%	2	1.0	2	1.0	6,490	3.0	97.0	6,297	69.0	31.0	74.1
Ward - 12	940	237	25.2%	0	0.0	0	0.0	6,476	4.4	95.6	6,193	70.6	29.4	53.7
Ward - 23	962	232	24.1%	0	0.0	0	0.0	6,265	4.0	96.0	6,012	76.5	23.5	77.5
Not geocoded	-	169	-	2	1.2	2	1.3	-	-	-	-	-	-	-
City Total	28,369	12,836	45.2%	567	4.4	345	2.9	176,354	14.7	85.3	150,376	46.9	53.1	85.3

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Table 5
Childhood Lead Poisoning by Neighborhood, 2007

Neighborhood Number	Neighborhood	Population <6 Years	Number Screened	Percent Screened	Number ≥ 10 µg/dl	SPR (%)	New Cases	SIR (%)	Total Housing Units	Percent Vacant	Percent Occupied	Total Occupied	Percent Owner Occupied	Percent Renter Occupied
51	Academy	284	128	45.1%	15	11.7	7	6.4	1,729	27.6	72.4	1,252	53.8	46.2
67	Fairground Neighborhood	215	127	59.1%	14	11.0	11	10.1	1,216	28.8	71.2	866	47.7	52.3
65	Hyde Park	426	187	43.9%	20	10.7	12	7.5	1,767	29.2	70.8	1,252	35.2	64.8
58	Vandeventer	182	78	42.9%	8	10.3	4	5.6	1,183	28.8	71.2	842	50.1	49.9
52	Kingsway West	260	153	58.8%	15	9.8	9	6.8	1,978	18.7	81.3	1,609	45.9	54.1
68	O'Fallon	625	303	48.5%	29	9.6	18	6.9	3,269	18.5	81.5	2,666	52.3	47.7
19	Gravois Park	686	363	52.9%	31	8.5	18	5.6	2,818	28.2	71.8	2,024	65.7	34.3
78	Hamilton Heights	359	203	56.5%	17	8.4	10	5.8	1,852	26.0	74.0	1,371	49.5	50.5
23	McKinley Heights	236	77	32.6%	6	7.8	6	8.0	1,101	23.5	76.5	842	26.7	73.3
66	College Hill	313	143	45.7%	10	7.0	7	5.5	1,342	31.5	68.5	919	45.6	54.4
18	Marine Villa	296	145	49.0%	10	6.9	6	4.3	1,576	25.4	74.6	1,175	39.5	60.5
69	Penrose	545	284	52.1%	19	6.7	7	2.8	3,565	15.1	84.9	3,028	61.0	39.0
53	Fountain Park	160	78	48.8%	5	6.4	4	5.6	1,010	25.2	74.8	756	32.0	68.0
57	The Ville	211	110	52.1%	7	6.4	4	4.1	1,492	26.9	73.1	1,091	35.7	64.3
30	Benton Park West	647	290	44.8%	18	6.2	10	4.0	2,540	26.7	73.3	1,863	73.4	26.6
50	Wells/Goodfellow	790	420	53.2%	25	6.0	16	4.2	4,063	26.7	73.3	2,978	46.3	53.7
71	Mark Twain	420	202	48.1%	12	5.9	7	3.8	2,281	22.2	77.8	1,775	35.9	64.1
76	Walnut Park West	342	219	64.0%	13	5.9	9	4.4	1,592	11.2	88.8	1,414	72.2	27.8
72	Walnut Park East	456	256	56.1%	15	5.9	7	3.1	2,111	19.0	81.0	1,710	64.1	35.9
70	Mark Twain/I-70 Industrial	51	52	102.0%	3	5.8	2	4.5	393	7.9	92.1	362	86.5	13.5
34	Lasalle	158	70	44.3%	4	5.7	1	1.6	650	6.8	93.2	606	28.0	72.0
35	Downtown	11	18	163.6%	1	5.6	0	0.0	1,050	34.9	65.1	684	0.9	99.1
54	Lewis Place	155	114	73.5%	6	5.3	3	2.9	1,045	27.6	72.4	757	46.6	53.4
15	Tower Grove South	1270	548	43.1%	28	5.1	16	3.1	7,308	13.6	86.4	6,316	47.7	52.3
55	Kingsway East	364	197	54.1%	10	5.1	3	1.7	2,162	19.6	80.4	1,739	52.0	48.0
46	Skinker/DeBaliviere	244	80	32.8%	4	5.0	4	5.3	2,348	10.3	89.7	2,106	58.5	41.5
59	JeffVanderLou	561	301	53.7%	15	5.0	11	4.2	3,463	28.0	72.0	1,492	34.5	65.5

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Neighborhood Number	Neighborhood	Population <6 Years	Number Screened	Percent Screened	Number ≥ 10 µg/dl	SPR (%)	New Cases	SIR (%)	Total Housing Units	Percent Vacant	Percent Occupied	Total Occupied	Percent Owner Occupied	Percent Renter Occupied
39	Forest Park Southeast	341	167	49.0%	8	4.8	3	2.0	1,831	23.0	77.0	1,409	34.3	65.7
42	Clayton/Tamm	127	21	16.5%	1	4.8	0	0.0	1,436	7.2	92.8	1,333	52.9	47.1
56	The Greater Ville	688	317	46.1%	15	4.7	8	2.8	4,221	23.7	76.3	3,220	48.8	51.2
28	McRee Town	289	69	23.9%	3	4.3	2	3.2	824	34.6	65.4	539	21.7	78.3
25	Tower Grove East	693	258	37.2%	11	4.3	8	3.3	3,485	20.6	79.4	2,766	38.5	61.5
74	Baden	695	352	50.6%	15	4.3	10	3.0	3,697	13.9	86.1	3,184	56.6	43.4
48	West End	635	402	63.3%	17	4.2	12	3.2	3,347	21.8	72.8	2,317	29.9	70.1
17	Mount Pleasant	399	213	53.4%	9	4.2	6	3.0	2,281	14.9	85.1	1,941	30.5	69.5
27	Shaw	811	263	32.4%	11	4.2	7	2.9	3,802	17.9	82.1	3,120	38.9	61.1
75	Riverview	18	24	133.3%	1	4.2	1	4.2	96	8.2	91.8	90	78.9	21.1
36	Downtown West	36	25	69.4%	1	4.0	1	4.0	2,073	20.2	79.8	1,654	1.4	98.6
63	Old North St. Louis	241	131	54.4%	5	3.8	5	3.8	1,036	41.5	58.5	606	21.1	78.9
3	Holly Hills	317	80	25.2%	3	3.8	3	3.8	1,887	8.1	91.9	1,734	58.4	41.6
14	North Hampton	520	190	36.5%	7	3.7	5	2.7	4,524	5.4	94.6	4,279	47.5	52.5
16	Dutchtown	1808	992	54.9%	35	3.5	17	1.9	8,447	18.8	81.2	6,856	41.3	58.7
60	St. Louis Place	257	173	67.3%	6	3.5	3	1.9	1,395	33.3	66.7	931	39.9	60.1
26	Compton Heights	98	31	31.6%	1	3.2	1	3.3	688	11.8	88.2	607	64.7	35.3
5	Bevo Mill	1153	450	39.0%	14	3.1	11	2.5	5,984	7.9	92.1	5,513	63.7	36.3
1	Carondelet	828	386	46.6%	12	3.1	7	1.9	4,730	15.4	84.6	4,004	51.8	48.2
32	Lafayette Square	109	33	30.3%	1	3.0	0	0.0	1,007	11.8	86.2	888	34.7	65.3
43	Franz Park	172	39	22.7%	1	2.6	1	2.6	1,318	7.7	92.3	1,216	66.6	33.4
2	Patch	236	123	52.1%	3	2.4	2	1.7	1,513	18.8	81.2	1,228	50.7	49.3
44	Hi-Point	128	42	32.8%	1	2.4	1	2.4	1,331	5.6	94.4	1,256	48.8	51.2
73	North Point	261	131	50.2%	3	2.3	2	1.6	1,648	3.4	96.6	1,592	83.7	16.3
8	St. Louis Hills	451	96	21.3%	2	2.1	2	2.1	4,077	3.3	96.7	3,941	57.1	42.9
22	Benton Park	336	100	29.8%	2	2.0	2	2.1	2,377	26.2	73.8	1,755	42.3	57.7
38	Central West End	451	151	33.5%	3	2.0	2	1.4	9,572	11.3	88.7	8,488	25.7	74.3

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21	Soulard	162	58	35.8%	1	1.7	1	1.8	2,216	17.6	82.4	1,825	27.7	72.3
77	Covenant Blu/Grand Center	237	127	53.6%	2	1.6	2	1.7	1,721	27.3	72.7	1,252	11.4	88.6
29	Tiffany	135	67	49.6%	1	1.5	1	1.6	571	12.3	87.7	501	25.2	74.8
47	DeBaliviere Place	153	71	46.4%	1	1.4	1	1.4	2,409	14.3	85.7	2,064	18.0	82.0
24	Fox Park	384	154	40.1%	2	1.3	1	0.7	1,549	29.8	71.1	1,101	36.7	63.3
31	The Gate District	343	164	47.8%	2	1.2	0	0.0	1,636	17.2	82.8	1,354	35.7	64.3
13	Southwest Garden	334	105	31.4%	1	1.0	0	0.0	3,188	10.4	89.6	2,856	42.8	57.2
33	Peabody, Darst, Webbe	310	256	82.6%	2	0.8	1	0.4	779	28.1	71.9	560	3.4	96.6
7	South Hampton	648	167	25.8%	1	0.6	1	0.6	3,675	5.3	94.7	3,482	66.3	33.7
61	Carr Square	349	275	78.8%	1	0.4	1	0.4	1,327	25.7	74.3	966	99.4	0.6
4	Boulevard Heights	558	201	36.0%	0	0.0	0	0.0	4,093	3.8	92.2	3,939	84.5	15.5
9	Lindenwood Park	687	173	25.2%	0	0.0	0	0.0	5,032	4.2	95.8	4,819	29.3	70.7
6	Princeton Heights	608	146	24.0%	0	0.0	0	0.0	4,033	5.4	94.6	3,817	68.7	31.3
62	Columbus Square	285	73	25.6%	0	0.0	0	0.0	1,236	37.2	62.8	776	7.0	93.0
11	Clifton Heights	263	63	24.0%	0	0.0	0	0.0	1,642	6.8	93.2	1,531	74.9	25.1
49	Visitation Park	79	48	60.8%	0	0.0	0	0.0	576	15.3	84.3	488	22.1	77.9
12	The Hill	157	42	26.8%	0	0.0	0	0.0	1,486	6.8	93.2	1,385	66.2	33.8
10	Ellendale	137	33	24.1%	0	0.0	0	0.0	756	9.0	91.0	688	68.6	31.4
64	Near North Riverfront	25	13	52.0%	0	0.0	0	0.0	157	52.2	47.8	75	36.0	64.0
41	Cheltenham	21	8	38.1%	0	0.0	0	0.0	262	10.3	89.7	235	54.5	45.5
37	Midtown	65	8	12.3%	0	0.0	0	0.0	1,532	18.9	81.1	1,442	1.2	98.8
40	Kings Oak	17	6	35.3%	0	0.0	0	0.0	113	11.5	86.5	100	59.0	41.0
45	Wydown/Skinker	26	4	15.4%	0	0.0	0	0.0	727	9.2	90.8	660	46.1	53.9
79	North Riverfront	21	0	0.0%	0	0.0	0	0.0	107	27.1	72.9	78	52.6	47.4
	Not geocoded	-	169	-	2	1.2	2	1.3	-	-	-	-	-	-
City Total		28,369	12,836	45.2%	567	4.4	345	2.9	176,354	17.2	82.8	145,956	46.9	53.1

* Neighborhoods with small populations of children under 6 appear to have high screening prevalence rates due to fewer children screened.

** Percent screened may exceed 100% due to use of 2000 Census population data

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Table 6
Childhood Lead Poisoning by Census Tract, 2007

Census Tract	Population <6 Years	Number Screened	Percent Screened	Number ≥ 10 µg/dl	SPR (%)	New Cases	SIR (%)	Total Housing Units	Percent Vacant	Percent Occupied	Percent Owner Occupied	Percent Renter Occupied	Percent Pre-1950 Housing
101100	186	61	32.8%	0	0.0	0	0.0	1,211	3.5	96.5	91.3	8.7	28.5
101200	194	50	25.8%	0	0.0	0	0.0	1,494	2.6	97.4	83.5	16.5	39.6
101300	377	91	24.1%	3	3.3	3	3.4	2,207	6.6	93.4	66.4	33.6	91.9
101400	236	121	51.3%	0	0.0	0	0.0	1,411	10.6	89.4	60.4	39.6	89.0
101500	290	143	49.3%	4	2.8	3	2.2	1,708	17.2	82.8	45.6	54.4	79.4
101800	259	132	51.0%	6	4.5	4	3.1	1,658	20.5	79.5	48.6	51.4	84.2
102100	179	41	22.9%	0	0.0	0	0.0	1,748	5.8	94.2	40.4	59.6	79.9
102200	428	91	21.3%	0	0.0	0	0.0	3,095	3.7	96.3	80.5	19.5	71.4
102300	111	58	52.3%	0	0.0	0	0.0	930	4.0	96.0	86.3	13.7	33.4
102400	233	67	28.8%	2	3.0	1	1.6	1,211	7.4	92.6	63.0	37.0	93.5
102500	175	49	28.0%	0	0.0	0	0.0	1,047	6.5	93.5	70.3	29.7	80.5
103100	203	50	24.6%	0	0.0	0	0.0	1,819	2.7	97.3	52.0	48.0	77.4
103400	170	32	18.8%	0	0.0	0	0.0	971	4.7	95.3	73.7	26.3	86.3
103600	115	25	21.7%	0	0.0	0	0.0	702	4.6	95.4	72.1	27.9	57.5
103700	188	51	27.1%	0	0.0	0	0.0	1,461	8.1	91.9	68.1	31.9	89.3
103800	277	78	28.2%	0	0.0	0	0.0	1,883	3.9	96.1	81.1	18.9	80.0
103900	90	22	24.4%	0	0.0	0	0.0	496	9.5	90.5	75.7	24.3	72.8
104100	191	46	24.1%	1	2.2	1	2.3	1,453	8.3	91.7	63.8	36.2	77.1
104200	196	50	25.5%	1	2.0	1	2.0	2,091	5.8	94.2	50.3	49.7	83.9
104500	97	27	27.8%	1	3.7	0	0.0	1,051	9.2	90.8	53.9	46.1	74.1
105100	155	41	26.5%	0	0.0	0	0.0	2,054	10.0	90.0	39.1	60.9	96.1
105200	153	72	47.1%	4	5.6	4	6.0	1,629	11.7	88.3	34.1	65.9	81.9
105300	219	139	63.5%	6	4.3	3	2.4	1,362	20.9	79.1	25.0	75.0	89.4

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105400	282	182	64.5%	7	3.8	6	3.5	1,110	27.4	72.6	23.7	76.3	94.0
105500	211	122	57.8%	4	3.3	3	2.6	1,518	20.9	79.1	48.0	52.0	93.1
106100	273	150	54.9%	14	9.3	7	5.6	1,390	24.5	75.5	49.5	50.5	98.1
106200	300	147	49.0%	7	4.8	5	3.6	1,239	30.7	69.3	37.6	62.4	84.9
106300	299	138	46.2%	10	7.2	7	5.6	1,411	21.5	78.5	46.9	53.1	90.0
106400	232	130	56.0%	14	10.8	9	8.1	1,715	24.8	75.2	48.7	51.3	90.9
106500	219	158	72.1%	9	5.7	4	2.9	1,676	20.6	79.4	48.7	51.3	97.7
106600	211	122	57.8%	13	10.7	8	7.6	1,208	27.4	72.6	47.8	52.2	97.5
106700	364	193	53.0%	10	5.2	3	1.8	2,162	19.6	80.4	52.0	48.0	94.8
107100	51	52	102.0%	3	5.8	2	4.5	393	7.9	92.1	86.5	13.5	82.9
107200	150	77	51.3%	5	6.5	2	3.0	707	19.2	80.8	57.1	42.9	80.2
107300	463	283	61.1%	14	4.9	10	3.8	2,289	9.0	91.0	74.8	25.2	78.7
107400	306	179	58.5%	10	5.6	5	3.1	1,404	18.9	81.1	67.6	32.4	91.1
107500	304	153	50.3%	11	7.2	6	4.4	1,064	16.3	83.7	68.5	31.5	95.1
107600	165	85	51.5%	2	2.4	1	1.3	1,222	27.2	72.8	57.3	42.7	93.1
107700	307	148	48.2%	13	8.8	4	3.1	2,067	13.7	86.3	62.2	37.8	90.3
108100	296	140	47.3%	7	5.0	3	2.3	1,526	11.4	88.6	73.9	26.1	83.4
108200	181	96	53.0%	2	2.1	2	2.2	1,240	8.1	91.9	61.1	38.9	77.9
108300	209	101	48.3%	4	4.0	3	3.1	1,083	9.9	90.1	71.5	28.5	83.9
108400	104	73	70.2%	4	5.5	3	4.4	557	14.9	85.1	39.2	60.8	68.3
108500	63	33	52.4%	1	3.0	1	3.2	365	27.4	72.6	36.2	63.8	71.7
109600	383	141	36.8%	12	8.5	5	4.3	1,832	15.0	85.0	51.7	48.3	89.4
109700	420	196	46.7%	13	6.6	9	5.2	1,899	32.9	67.1	45.2	54.8	85.0
110100	301	160	53.2%	5	3.1	5	3.3	1,779	19.5	80.5	58.6	41.4	88.2
110200	306	165	53.9%	17	10.3	11	7.7	1,592	21.1	78.9	52.1	47.9	92.7

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110300	262	105	40.1%	3	2.9	2	2.2	1,744	23.9	76.1	46.6	53.4	94.2
110400	262	131	50.0%	12	9.2	7	6.8	1,554	23.9	76.1	49.0	51.0	97.6
110500	181	115	63.5%	15	13.0	13	12.7	1,038	29.6	70.4	46.9	53.1	92.9
111100	155	68	43.9%	5	7.4	3	4.6	962	29.4	70.6	48.9	51.1	91.8
111200	147	74	50.3%	5	6.8	2	3.0	1,098	34.4	65.6	44.0	56.0	95.7
111300	179	100	55.9%	5	5.0	3	3.3	1,279	28.1	71.9	36.2	63.8	94.6
111400	151	82	54.3%	9	11.0	4	5.6	1,129	29.8	70.2	47.7	52.3	94.1
111500	129	60	46.5%	5	8.3	4	7.7	670	27.0	73.0	44.2	55.8	94.1
112100	194	68	35.1%	2	2.9	2	3.0	2,753	12.8	87.2	29.4	70.6	89.9
112200	172	79	45.9%	6	7.6	3	4.3	990	22.0	78.0	40.2	59.8	97.4
112300	231	141	61.0%	6	4.3	4	3.1	1,494	25.0	75.0	39.3	60.7	98.4
112400	107	29	27.1%	0	0.0	0	0.0	2,687	9.2	90.8	23.5	76.5	91.5
113100	169	46	27.2%	0	0.0	0	0.0	1,784	6.7	93.3	46.6	53.4	69.6
113400	76	23	30.3%	0	0.0	0	0.0	509	11.4	88.6	49.0	51.0	77.3
113500	154	41	26.6%	0	0.0	0	0.0	1,408	7.0	93.0	67.0	33.0	80.9
114100	614	206	33.6%	9	4.4	7	3.5	4,925	5.2	94.8	49.3	50.7	83.4
114200	329	100	30.4%	0	0.0	0	0.0	2,698	4.8	95.2	62.7	37.3	65.4
114300	538	126	23.4%	1	0.8	1	0.8	2,770	4.5	95.5	74.0	26.0	93.8
115100	321	130	40.5%	4	3.1	4	3.1	1,962	6.9	93.1	58.2	41.8	94.7
115200	345	191	55.4%	6	3.1	2	1.1	1,699	10.3	89.7	37.0	63.0	82.3
115300	566	313	55.3%	9	2.9	5	1.7	2,578	14.5	85.5	62.3	37.7	86.7
115400	304	120	39.5%	4	3.3	3	2.6	1,413	10.3	89.7	68.2	31.8	90.6
115500	629	327	52.0%	14	4.3	6	2.0	2,987	17.2	82.8	45.3	54.7	95.5
115600	475	247	52.0%	10	4.0	6	2.6	2,745	15.0	85.0	32.7	67.3	84.7
115700	377	231	61.3%	11	4.8	6	2.8	1,890	19.4	80.6	38.3	61.7	90.5

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Census Tract	Population <6 Years	Number Screened	Percent Screened	Number ≥ 10 µg/dl	SPR (%)	New Cases	SIR (%)	Total Housing Units	Percent Vacant	Percent Occupied	Percent Owner Occupied	Percent Renter Occupied	Percent Pre-1950 Housing
116100	297	154	51.9%	5	3.2	5	3.3	1,768	11.1	88.9	50.5	49.5	83.3
116200	505	130	25.7%	4	3.1	3	2.5	2,458	14.2	85.8	51.3	48.7	96.4
116300	521	297	57.0%	21	7.1	11	4.0	3,207	15.3	84.7	37.5	62.5	95.8
116400	597	317	53.1%	26	8.2	11	4.0	2,483	23.3	76.7	36.6	63.4	95.0
116500	470	158	33.6%	7	4.4	3	2.1	2,266	22.0	78.0	39.2	60.8	95.4
117100	112	42	37.5%	1	2.4	0	0.0	1,181	15.3	84.7	20.5	79.5	96.4
117200	765	236	30.8%	9	3.8	6	2.7	3,155	19.6	80.4	36.1	63.9	98.2
117300	284	121	42.6%	1	0.8	1	0.9	1,487	16.9	83.1	36.0	64.0	94.8
117400	437	153	35.0%	8	5.2	7	4.8	2,330	16.4	83.6	43.4	56.6	96.0
118100	247	91	36.8%	4	4.4	3	3.7	994	33.0	67.0	34.5	65.5	88.2
118400	20	3	15.0%	0	0.0	0	0.0	953	17.3	82.7	0.9	99.1	18.4
118500	97	29	29.9%	0	0.0	0	0.0	363	17.4	82.6	56.3	43.7	77.2
118600	217	109	50.2%	7	6.4	2	2.1	1,291	20.3	79.7	34.2	65.8	88.9
119100	152	49	32.2%	1	2.0	1	2.0	4,483	11.1	88.9	23.3	76.7	74.1
119200	90	32	35.6%	1	3.1	0	0.0	960	22.6	77.4	45.5	54.5	88.7
119300	111	37	33.3%	0	0.0	0	0.0	1,324	13.6	86.4	4.5	95.5	63.1
120100	58	41	70.7%	1	2.4	1	2.6	503	30.6	69.4	37.0	63.0	91.9
120200	144	73	50.7%	6	8.2	4	6.1	543	21.5	78.5	38.7	61.3	93.2
120300	164	104	63.4%	5	4.8	2	2.3	916	34.3	65.7	40.2	59.8	78.0
121100	80	95	118.8%	0	0.0	0	0.0	865	10.8	89.2	1.6	98.4	82.5
121200	311	98	31.5%	3	3.1	2	2.2	1,477	33.2	66.8	7.6	92.4	77.6
121300	119	88	73.9%	1	1.1	1	1.1	613	30.8	69.2	7.3	92.7	91.7
121400	7	2	28.6%	0	0.0	0	0.0	143	37.8	62.2	3.4	96.6	70.7
122100	180	93	51.7%	2	2.2	0	0.0	864	11.7	88.3	38.5	61.5	63.1
122200	0	7	-	0	0.0	0	0.0	2	0.0	100.0	50.0	50.0	50.6

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Census Tract	Population <6 Years	Number Screened	Percent Screened	Number ≥ 10 µg/dl	SPR (%)	New Cases	SIR (%)	Total Housing Units	Percent Vacant	Percent Occupied	Percent Owner Occupied	Percent Renter Occupied	Percent Pre-1950 Housing
122400	433	286	66.1%	5	1.7	1	0.4	1,088	17.3	82.7	22.1	77.9	85.8
123100	426	164	38.5%	2	1.2	1	0.6	1,973	26.1	73.9	39.5	60.5	87.5
123200	170	74	43.5%	3	4.1	2	2.7	1,193	20.2	79.8	36.9	63.1	90.9
123300	288	95	33.0%	4	4.2	4	4.3	1,716	20.9	79.1	34.9	65.1	96.0
123400	153	56	36.6%	1	1.8	1	1.9	2,070	16.6	83.4	27.1	72.9	87.3
124100	600	280	46.7%	15	5.4	12	4.9	2,645	30.2	69.8	35.1	64.9	92.0
124200	477	215	45.1%	8	3.7	5	2.7	1,918	28.0	72.0	33.2	66.8	92.5
124300	293	98	33.4%	4	4.1	4	4.2	2,145	27.4	72.6	41.5	58.5	95.5
124600	216	109	50.5%	9	8.3	5	4.8	1,023	26.6	73.4	41.7	58.3	76.5
125500	36	19	52.8%	1	5.3	1	5.3	1,963	19.1	80.9	1.3	98.7	76.7
125600	52	36	69.2%	1	2.8	0	0.0	1,310	29.3	70.7	0.5	99.5	63.1
125700	480	264	55.0%	1	0.4	1	0.4	1,795	35.7	64.3	5.1	94.9	32.9
126600	357	204	57.1%	6	2.9	6	3.0	1,534	38.9	61.1	28.1	71.9	90.5
126700	214	93	43.5%	12	12.9	6	7.9	1,017	30.8	69.2	31.4	68.6	93.1
Not geocoded	-	170	-	2	1.2	2	1.2	-	-	-	-	-	-
City Total	28,369	12,836	45.2%	567	4.4	345	2.9	176,354	14.7	85.3	46.9	53.1	85.3

* Census tracts with small populations of children under 6 appear to have high screening prevalence rates due to fewer children screened.

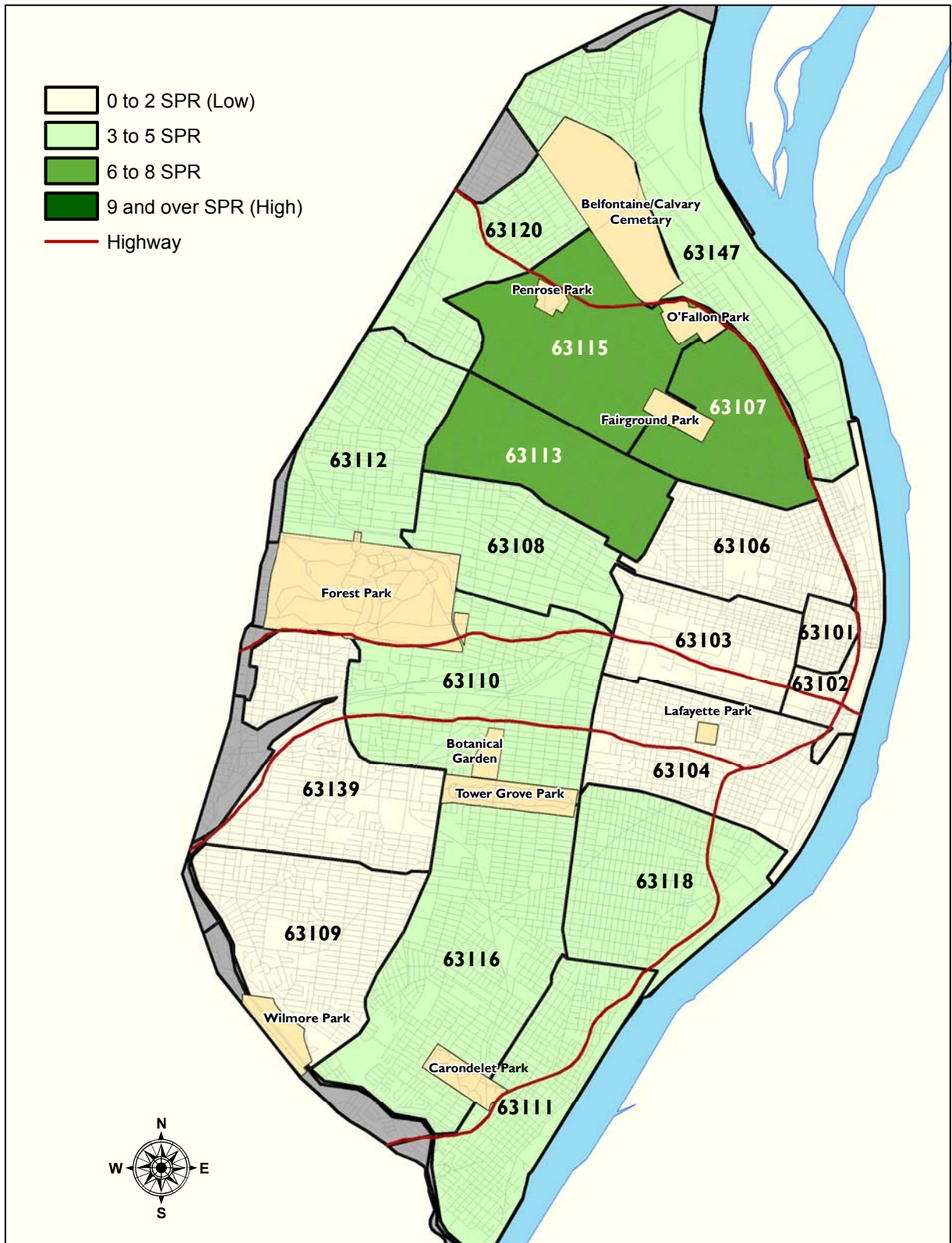
** Percent screened may exceed 100% due to use of 2000 Census population data

*** Sorted by ascending Census Tract, not SPR

Maps

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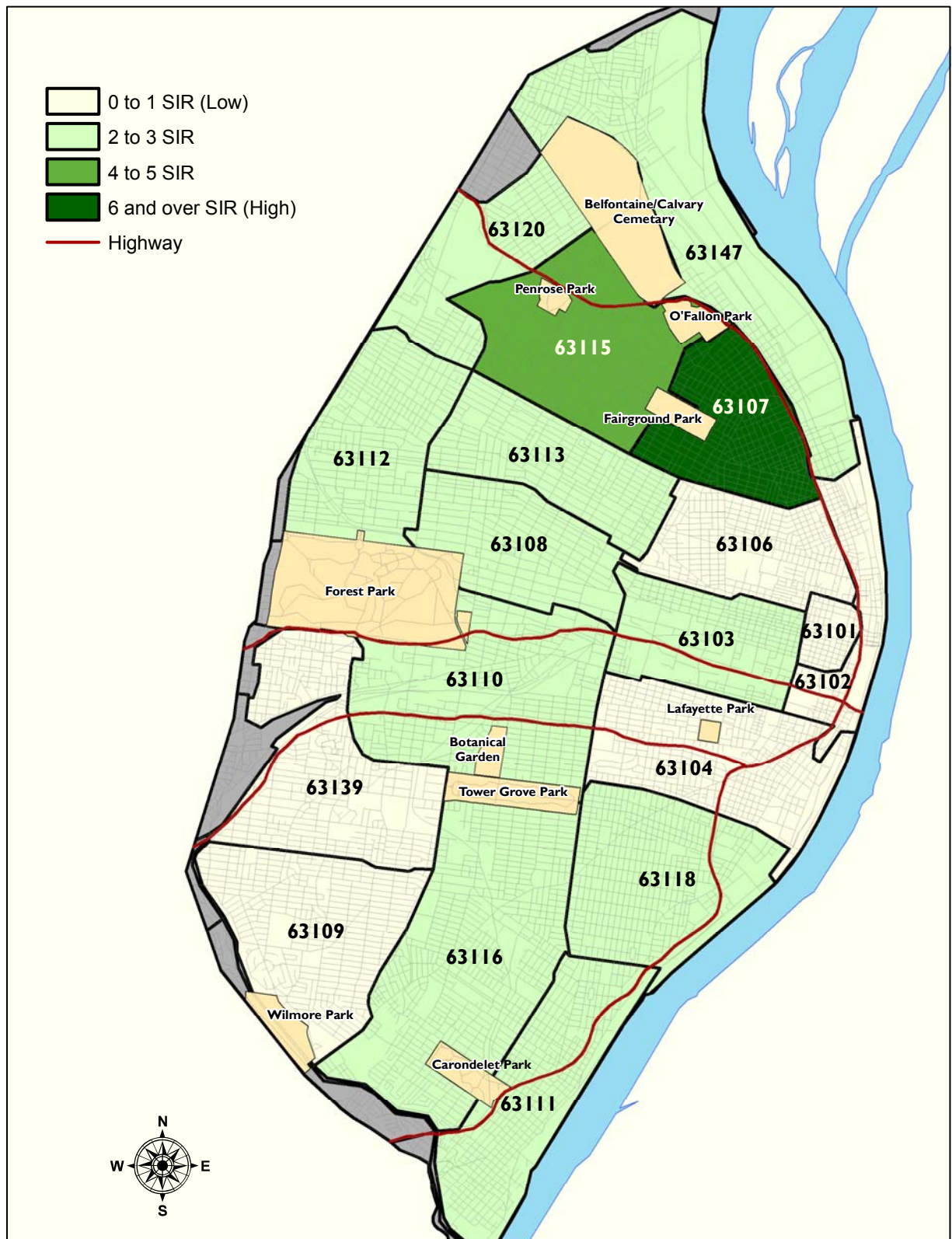
Map I
Screening Prevalence Rates by ZIP Code, 2007



* No ZIP codes in highest category in 2007

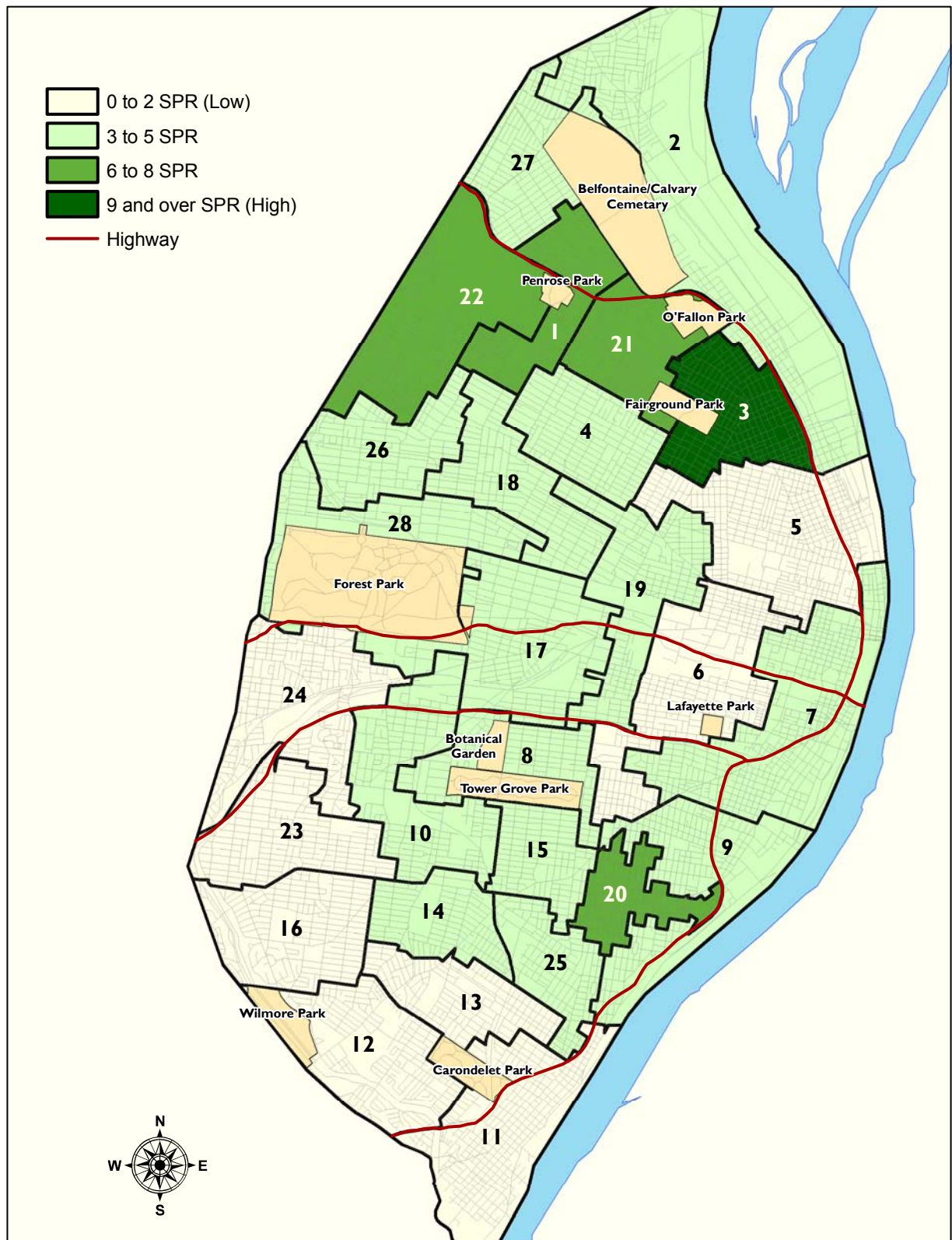
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Map 2
Screening Incidence Rates by ZIP Code, 2007



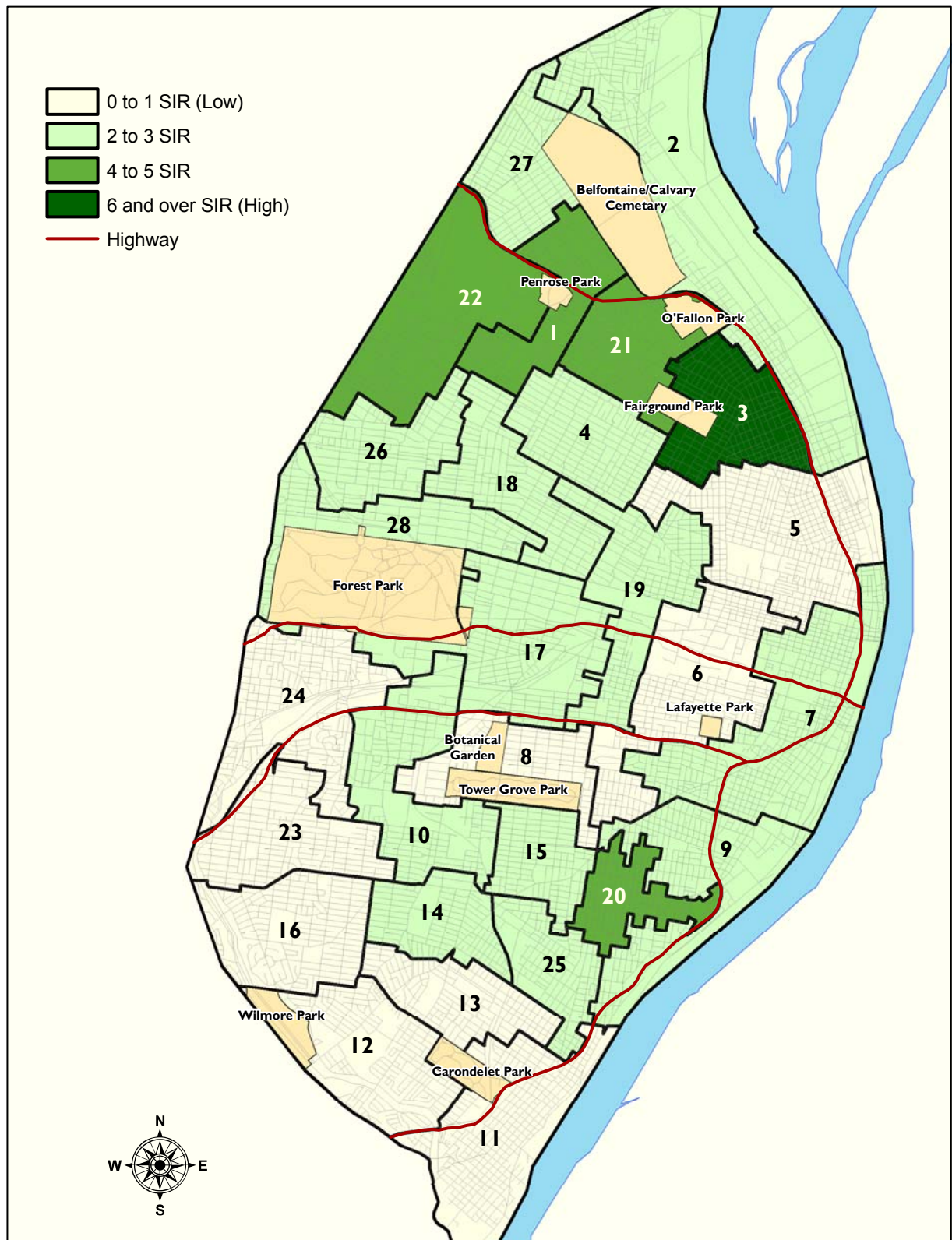
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Map 3
Screening Prevalence Rates by Ward, 2007



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Map 4
Screening Incidence Rates by Ward, 2007



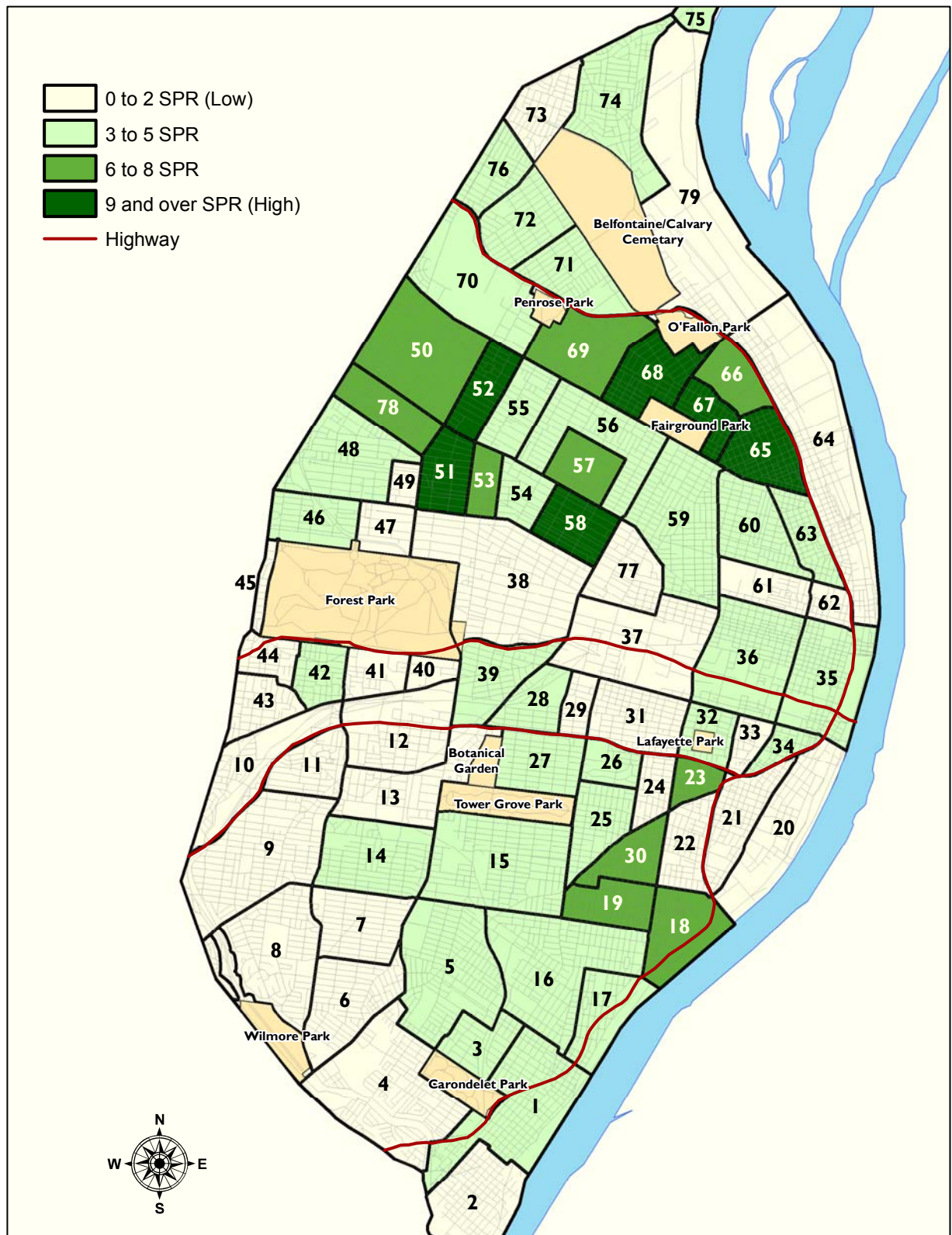
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City of St. Louis Neighborhoods Names and Numbers

Neighborhood Number	Neighborhood Name	Neighborhood Number	Neighborhood Name
1	Carondelet	41	Cheltenham
2	Patch	42	Clayton-Tamm
3	Holly Hills	43	Franz Park
4	Boulevard Heights	44	Hi-Pointe
5	Bevo Mill	45	Wydown Skinker
6	Princeton Heights	46	Skinker DeBaliviere
7	South Hampton	47	DeBaliviere Place
8	St. Louis Hills	48	West End
9	Lindenwood Park	49	Visitation Park
10	Ellendale	50	Wells Goodfellow
11	Clifton Heights	51	Academy
12	The Hill	52	Kingsway West
13	Southwest Garden	53	Fountain Park
14	North Hampton	54	Lewis Place
15	Tower Grove South	55	Kingsway East
16	Dutchtown	56	Greater Ville
17	Mount Pleasant	57	The Ville
18	Marine Villa	58	Vandeventer
19	Gravois Park	59	Jeff Vanderlou
20	Kosciusko	60	St. Louis Place
21	Soulard	61	Carr Square
22	Benton Park	62	Columbus Square
23	McKinley Heights	63	Old North St. Louis
24	Fox Park	64	Near North Riverfront
25	Tower Grove East	65	Hyde Park
26	Compton Heights	66	College Hill
27	Shaw	67	Fairground Neighborhood
28	McRee Town	68	O'Fallon
29	Tiffany	69	Penrose
30	Benton Park West	70	Mark Twain I-70 Industrial
31	The Gate District	71	Mark Twain
32	Lafayette Square	72	Walnut Park East
33	Peabody Darst Webbe	73	North Pointe
34	LaSalle Park	74	Baden
35	Downtown	75	Riverview
36	Downtown West	76	Walnut Park West
37	Midtown	77	Covenant Blu-Grand Center
38	Central West End	78	Hamilton Heights
39	Forest Park South East	79	North Riverfront
40	Kings Oak		

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Map 5
Screening Prevalence Rates by Neighborhood, 2007



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Map 6
Screening Incidence Rates by Neighborhood, 2007

